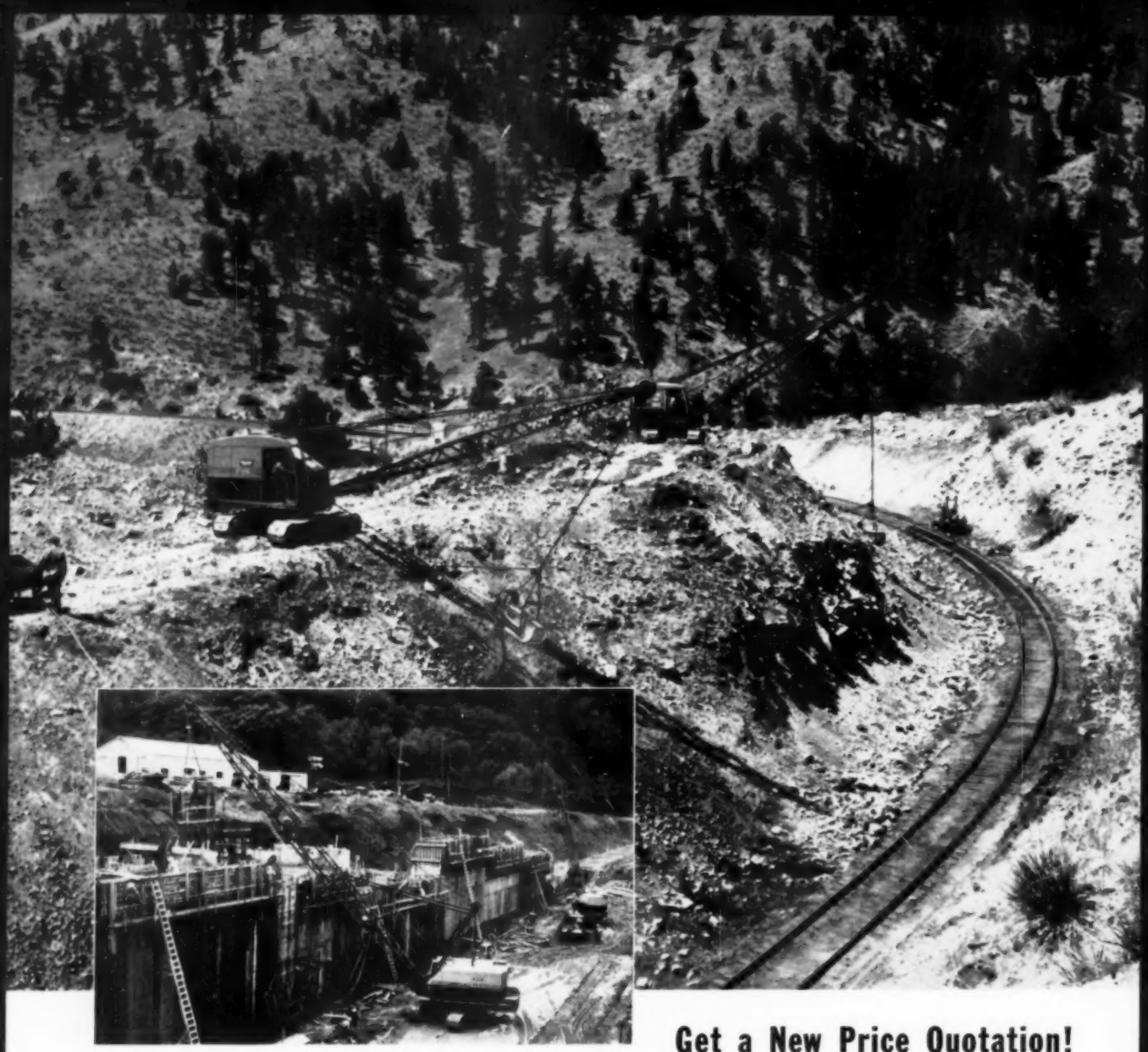
Excavating Engineer

Founded 1905

As a freighter moves up New York's East River, a barge-mounted lifting crane handles materials used in construction of bulkhead for new $7 million Pier No. 1 on the Brooklyn waterfront. A feature story begins on page 18.

NOVEMBER · 1958



Get a New Price Quotation!

In the long run, it costs less than you think to own a NEW Bucyrus-Erie Crane-Excavator!

There are dozens of shovels and cranes on the market, but Bucyrus-Eries outrank them all for quality construction and design . . . bonus output that makes profit . . . bonus resale value when you want to sell. *Used Bucyrus-Erie machines are consistently in demand.*

Your Bucyrus-Erie distributor will present you with a complete proposal on the combination you need for the next big job: crane-dragline, dragline-clamshell, crane-dragline-hoe — or any other of the combinations that let you take full advantage of Bucyrus-Erie's easy convertibility.

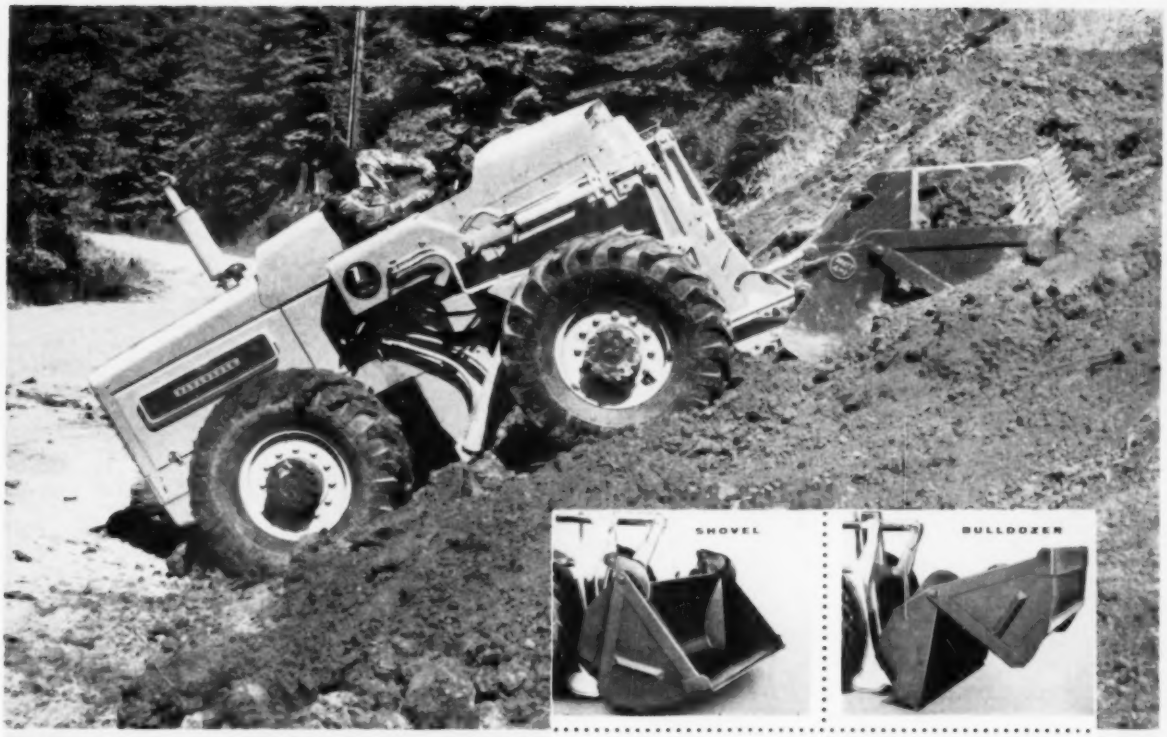
He'll also show you how you can get the most machine for your money — most profit from production. You owe it to yourself to find out exactly what your present machine is worth . . . what a *new* Bucyrus-Erie will cost. Do it today!

481E58C

MODERNIZE to economize!

BUCYRUS ERIE

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN



1 PAYLOADER®

but it's a bulldozer . . . a clamshell . . . a scraper . . . a shovel

One of the many useful attachments available only on a "PAYLOADER" in the rubber tired tractor-shovel field is the patented DROTT 4-in-1 bucket. With this bucket your "PAYLOADER" handles many more jobs than any other tractor-shovel . . . enables you to do jobs you may now be doing with hand labor . . . eliminates the need for several special machines . . . and it keeps your "PAYLOADER" busy every hour, every season.

It's a bulldozer

Open the clam lip full and you have a sturdy bulldozer with hydraulic, finger tip blade pitch control to regulate dozing depth.

It's a clamshell

Use the powerful clamshell action to pick up materials, from stockpiles or windrows, without tractor travel. Picks up huge boulders, stumps, making it ideal for land clearing.

It's a scraper

With slight clam lip opening, you have a handy scraper that loads itself, carries, dumps and spreads. Strips sod or grades with great accuracy.

It's a shovel

The 4-in-1 bucket can always be used as a regular tractor-shovel bucket to dig, carry and dump in the regular manner.

No other tractor-shovel gives you the versatility of a "PAYLOADER" with its many attachments including Back-hoes, Spreaders, Side Booms, Crane Booms, Sweepers and Snow Plows. See your "PAYLOADER" distributor today, or send for complete details.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO. 11-8-4
708 Sunnyside Ave., Libertyville, Ill.

Send full data on 4-wheel drive "PAYLOADER" models with DROTT "4-in-1" buckets to:

Name _____

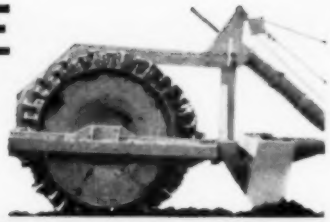
Title _____

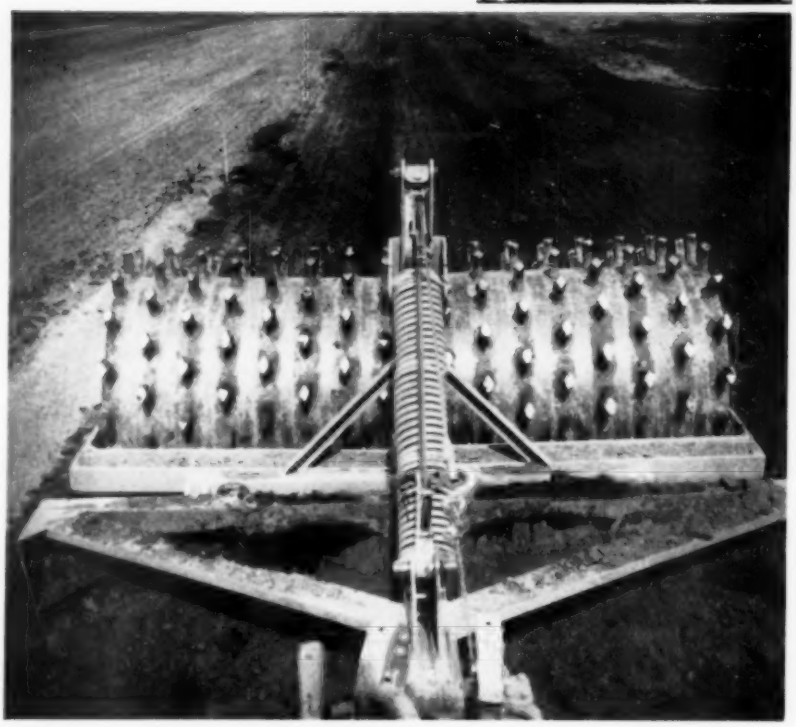
Company _____

Street _____

City _____ State _____

LAST YEAR HE WOULDN'T OWN ONE –THIS YEAR HE BOUGHT TWO!





The BROS Leveling Tamping Roller* is such an uncomplicated piece of equipment that last year even big grading contractors like Alley Construction Co., of Faribault, Minn. couldn't quite visualize its real value on earthfill work.

But this year, Lloyd Parker, Alley's superintendent on the grading job for nearly a million yards at Wold-Chamberlain Airport in the Twin Cities, put a BROS G2 Roller-Level Blade combination on the job —the results were so good that he purchased a second unit the *very next day!*

You can easily see why: The Leveling Roller makes subgrade rolling a productive item because it produces uniform, proper densities faster than conventional tamping rollers can. The blade puts the materials into the voids, building a smooth, level course, permitting equal compaction pressure over the full width of the drum. Because the course is smooth and compaction is fast, scrapers can haul and spread at faster speeds, earning you greater profits.

The Leveling Blade has 14″ vertical adjustment which is controlled from the operator's seat by either hydraulic or cable control. The Leveling Roller is available in rolling capacities from 15,160 lbs. to 44,700 lbs. when roller drum is filled with wet sand.

*Patent Pending

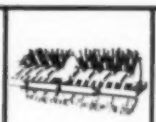
Level Blade Attachments for your present BROS M2 and G2 Series Tamping Rollers are also available. M2 Blade Specifications: 112″ width; 24″ height; and ½″ x 6″ double bevel reversible high carbon steel cutting edge. G2 Blade Specifications: 141″ width; 31″ height; ⅝″ x 8″ square edge reversible high carbon steel cutting edge.

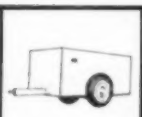
Get complete information on this new profit-making equipment from your nearest BROS Dealer or write us. World-wide sales and service.

BROS **BROS *Incorporated***
ROAD MACHINERY DIVISION

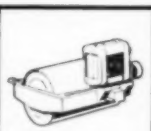
1057 TENTH AVE. S.E.
MINNEAPOLIS 14, MINN.

Write today for the full report on the Ohio tests and for complete new literature describing the new BROS SP-730 pneumatic roller. It's free of cost or obligation!


SHEEPSFOOT TAMPERS


ROLL-O-PACTOR

BITUMINOUS CIRCULATOR


VIBRA-PACTOR

9-TON SELF-PROPELLED ROLLER

9 AND 13-TON ROLLERS

Advertisers

IN THIS ISSUE

Allis-Chalmers Mfg. Co. ..... 10-11, 33, 34, 51, 4th Cover
American Brake Shoe Co., American Manganese Steel Div. ... 12
American Chain & Cable Co., Inc. American Cable Div. 7
American Hoist & Derrick Co., Crosby-Laughlin Div. 44
American Manganese Steel Div., American Brake Shoe Co. 12
Bethlehem Steel Co. 14
Bros, Inc. 2
Bucyrus-Erie Co. .. 2nd Cover, 4, 15, 48-49, 55, 59, 62
Buda Div., Allis-Chalmers Mfg. Co. ..... 4th Cover
Caterpillar Tractor Co. 16-17, 42, 43
Colorado Fuel & Iron Corp. 61
Crosby-Laughlin Div., American Hoist & Derrick Co. ... 44
Drake-Williams Mount 60
Eimco Corp., The 13
Engine-Material Handling Div., Allis-Chalmers Mfg. Co. ..... 4th Cover
Ensign-Bickford Co., The 9
Euclid Div., General Motors Corp. .5, 45
For Sale (Classified) 64, 65, 66
General Motors Corp., Euclid Div. 5, 45
Hendrix Mfg. Co. 6
Hough Co., The Frank G. 1
Mack Trucks, Inc. ..... 3rd Cover
Manitowoc Engineering Corp. 8
Marion Power Shovel Co. 53
Robeson Preservo Co. 44
Roebling's Sons Corp., John A. 61
Sauerman Bros., Inc. 41
Williams Bucket Div., Wellman Engineering Corp. 47

Excavating Engineer

founded 1905

South Milwaukee, Wisconsin

CONTENTS

Volume 52 No. 11 **November 1958**

Brooklyn Waterfront Gets New Look 18
Contractors are ripping out antiquated ocean freight terminals built during the last 60 years, replacing them with 1960-model steel and concrete piers for the Port of New York Authority.

Canals That Never Rest—by Floyd Suter Bixby 22
Wyoming irrigation district works winter and summer to keep open miles of lifelines.

Blast Expressway Through Boston Granite 26
Massachusetts contractor digs stubborn granite at suburban end of Southeast expressway. C. J. Maney section is one of eight contracts on the 15.5-mile long road project along coast.

Business Is What You Make It—by Ray Day 31
Denver excavating contractor keeps busy despite local slack in home construction.

Rock for A Railroad 35
Well-run Minnesota quarry is dependable source of ballast for Great Northern.

News from the Field 40

Nominate AGC Officers 40
B-E Names Sales Managers 40
Machine Loads Blast Holes 40
Ebasco Aids Iran 42

Equipment You Ought to Know About 46

Not in the Contract 50

Ex-Laffs Page 58

New Trade Literature 63

Notes from the Manufacturers 66

Copyright 1958 by Bucyrus-Erie Company. Published monthly at South Milwaukee, Wisconsin, U.S.A. Single copy price, 35 cents. Regular subscription (payable in advance) $3.50 a year; Canada and foreign, subject to publication policy, $5.00 per year. Special subscription: Upon written request on company letterhead this publication will be sent free of charge to companies, executives and supervisors engaged actively in excavating. Occupation of subscriber must be given for all subscriptions, paid or special. Right is reserved to refuse foreign subscriptions. Indexed by Engineering Index, Inc. Volumes available on microfilm.

H. A. BURKHARDT, Manager — M. B. JAEGER, Publisher

W. C. VAN DYKE, Sales Manager — W. E. WILLIAMS, Editor — D. L. FOELKER, Assistant Editor

E. W. ARNDT, Art Editor — H. LINDQUIST, Staff Photographer

Circulation of Excavating Engineer is audited by Business Publications Audit of Circulation, Inc. BPA

TIME IS MONEY

See How These Contractors Saved It!

HOME BUILDING

During development of Forrest Park Homes subdivision, East Norwich, L.I., Marangoni, Pulcini, & Co., Long Island, whipped out cesspool excavations averaging 200 cubic yards in less than 1½ hours each! This 22-B Transit Clamshell handled the cesspools for 46 homes in the development.

CHURCH BUILDING

Rocket Crane Service, Minneapolis, Minn., made quick work of unloading and spotting 30 precast concrete floor joists, using the 15-B's stability for longer reaches from one work position. Joists used in construction of this suburban church measure 37 feet by 3 feet, weigh 7,000 pounds each.

PLANT CONSTRUCTION

This 15-B excavated a wide trench for sewer pipe at the new Ford glass plant in Nashville, Tennessee. Owners Wrenn-Singleton-Gallagher Co. then used the same machine to place the pipe. Said operator Chris McGrady: "This is the fastest, easiest-handling machine I've ever used!"

This kind of high-speed, multi-duty performance is one more reason why contractors like yourself can make profitable use of Bucyrus-Erie cranes and excavators.

It costs nothing to find out more about the Bucyrus-Erie that meets your needs exactly. See your nearby distributor for information about *all* the big Transit Cranes — the 10-ton 11-B, 15-ton 15-B, 25-ton 22-B and the big 35-ton 30-B. Do it today! Bucyrus-Erie Company, South Milwaukee, Wis.

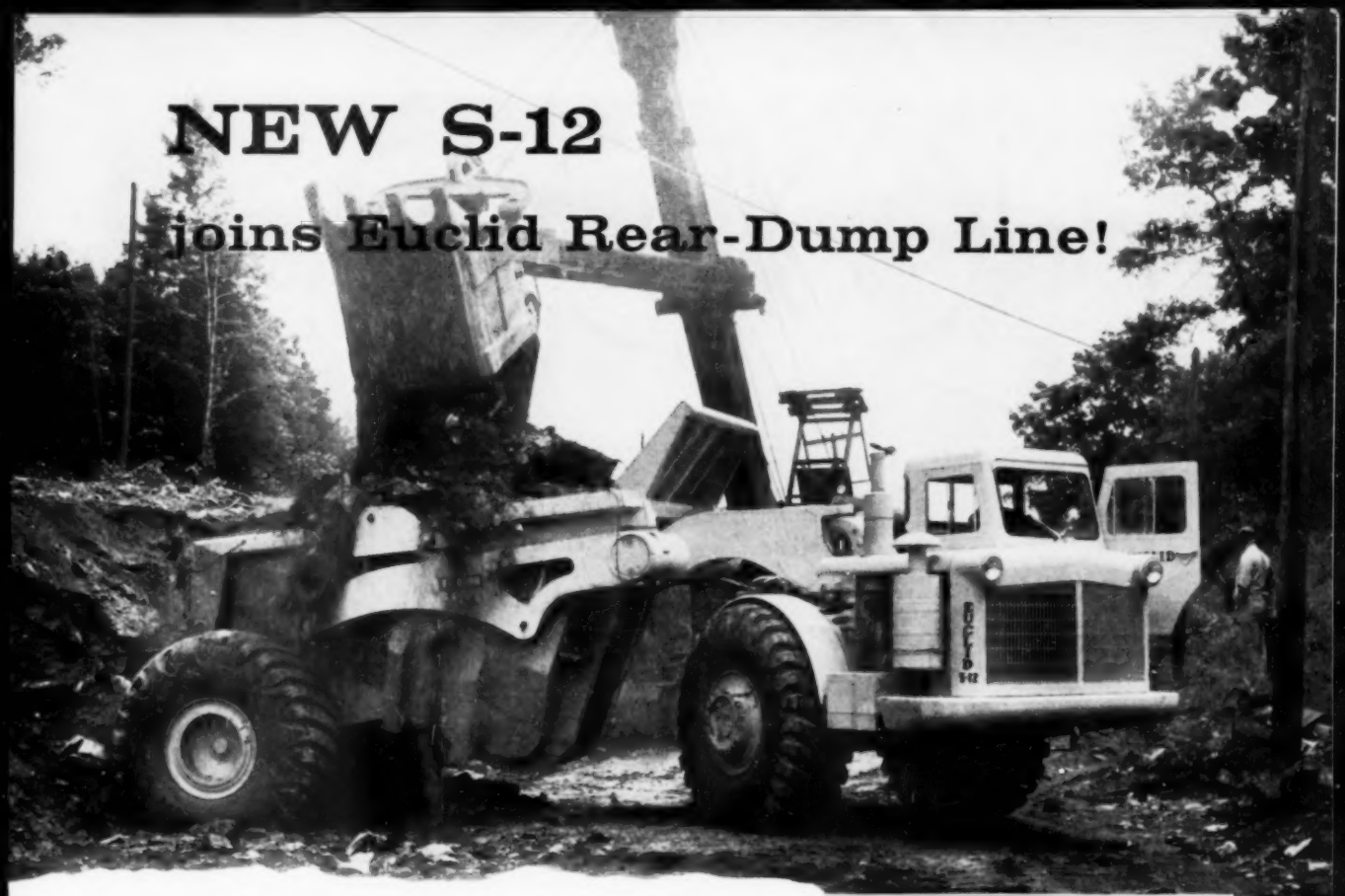
475E58C

BUCYRUS ERIE

A familiar sign at scenes of progress!

NEW S-12

joins Euclid Rear-Dump Line!



The Model S-12 Euclid-Easton hauler—with payload capacity of 44,000 lbs.—is a new size Euclid over-hung engine type semi-trailer rear-dump. Designed and built as a complete, balanced unit, it combines the experience of two leading manufacturers of hauling equipment for mines, quarries and heavy industrial and construction work.

With 218 h.p. and 5-speed gear transmission the S-12 has a fast travel speed and ample power for the toughest jobs. Big 24.00 x 25 tires on all wheels provide traction and flotation for operation under conditions that would stop other haulers. For work in close quarters the 90° hydraulic steering and variable wheel base gives the unit exceptional maneuverability and helps cut cycle time.

Well reinforced body is constructed of special alloy steel to withstand the impacts of shovel-loaded rock and heavy excavation. Single stage double-acting hoists raise the body quickly, with smooth positive control all during the dumping cycle.

Have your Euclid dealer show you how this Model S-12, or the 12 and 35 ton semi-trailer models with 143 and 325 h.p., can cut hauling costs. He'll be glad to tell you about other Rear-Dump "Eucs" of 10 to 50 ton capacity, too.

EUCLID Division of General Motors Corp., Cleveland 17, Ohio

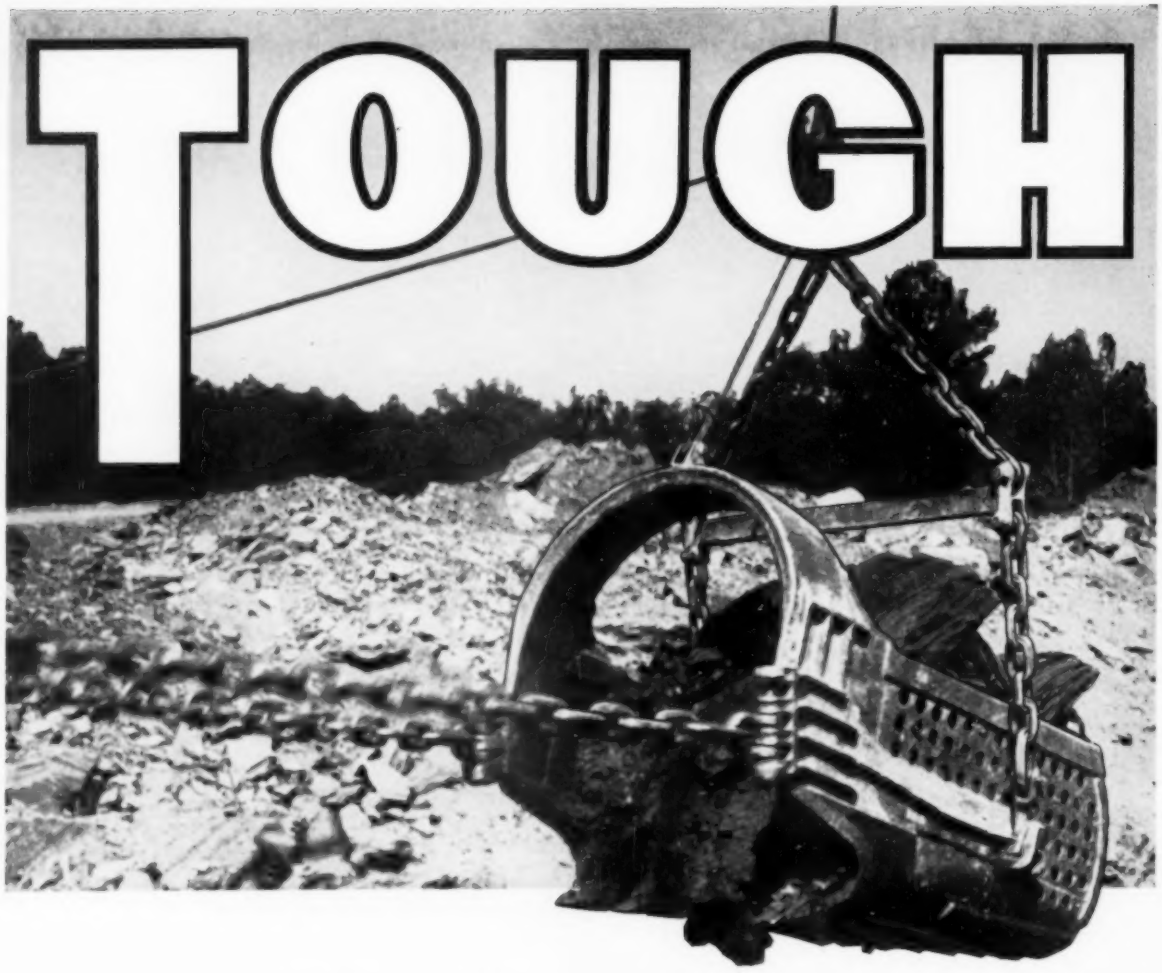
22-ton capacity
14 yds. struck
218 h.p.
24.00 x 25 tires
22.6 mph top speed

Euclid semi-trailer rear-dumps are available in 3 capacities—12, 22 and 35 tons with 143, 218 and 325 h.p. Tractors for these models are interchangeable on 7, 12 and 21 yd. scrapers.

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE



...and built to prove it!

Hendrix Lightweight DRAGLINE BUCKETS

The rugged construction of Hendrix Dragline Buckets in all types makes for trouble-free, consistent performance. No matter what the working conditions, Hendrix Buckets can "take it" and come back for more!

"A Type for Every Digging Purpose"...
¼ to 40 Cubic Yards-Perforated or Solid

HENDRIX MANUFACTURING COMPANY, Inc.

MANSFIELD, LOUISIANA

for Better Value

American Cable VHS®

DRAGLINE OPERATOR SAYS,

"Tru-Lay VHS is in a Class by Itself"

John Yamulla, dragline operator of Yamulla Excavating Company, Gowen, Pennsylvania, says, "TRU-LAY VHS is in a class by itself because it lasts and lasts. I never saw any other grade of wire rope give so much service through the beating we hand it! Before we started using TRU-LAY VHS, 600 hours of service was about all we could expect from a line. Since taking on TRU-LAY we average 1000 hours—a savings in rope replacement and equipment down time that adds into really big money."

Makes the Toughest Jobs Seem Easy

TRU-LAY VHS is actually the first entirely new grade of wire rope to be introduced in years. Before VHS (Very High Strength) came along, Improved Plow Steel was the highest grade of wire rope you could buy. For certain types of earth-moving jobs, TRU-LAY Preformed Improved Plow Steel still is the best line to use. But, where extra strength and toughness are called for—as in the case of draglines, shovel hoist ropes, scraper and dozer cable—you'll be dollars ahead using TRU-LAY VHS.

Here's the Secret of VHS

The answer lies in a new grade of rope wire developed by ACCO's own process. Made from premium steel billets carefully selected for the very finest chemical and physical properties, this new rope wire is processed into a line that's tougher, more wear resistant, and 15% stronger than Improved Plow Steel.

Only One Source for VHS

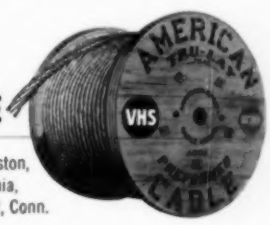
Remember . . . there's only one superior grade of wire rope on the market today—VHS; and only one company makes it—American Cable! Tell your distributor you want VHS the next time you order.

ACCO

American Cable Division

AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, Portland, Ore., San Francisco, Bridgeport, Conn.



How one 2½-yd. shovel moves 2,000 yards of hard sandstone, clay and shale a day on Ohio road job

5th Manitowoc for Hatcher Bros. Pays Off on Road Building

This Manitowoc Model 3000 shovel equipped with a 2½-yd. bucket has been averaging 2,000 yards of sandstone, shale and clay per 10 hour day working on the rebuilding of Route 39 near Salineville, Ohio. Hatcher Bros. Inc. of Mingo Junction, Ohio is handling all the excavating and grading on the $417,000 job which calls for the regrading and removal of 117,000 yards of material, containing approximately 33⅓ rock. In addition to the Model 3000, the company also owns two Manitowoc 1¼-yd. Model 2000 rigs and two 40-ton Model 2800 Mobile Cranes.

300,000 Yards of Rock — Prior to the present operation, the 2½-yd. shovel loaded out 300,000 yards of rock on another Ohio road job. The machine was moved to the present location in only three loads. "On both jobs," says Mr. Jim Smith, Superintendent, "the shovel has given us smooth, uninterrupted performance, with no appreciable downtime. We have never hit a rock formation that the machine could not break up and carry . . . nor have we been halted by a machine failure."

How You Can Benefit — Fleet owners like Hatcher Bros. know they can depend on their Manitowoc rigs for consistent, high output performance on any job. Judge for yourself . . . see your distributor soon for full details on any of the eight bonus-capacity Manitowocs.

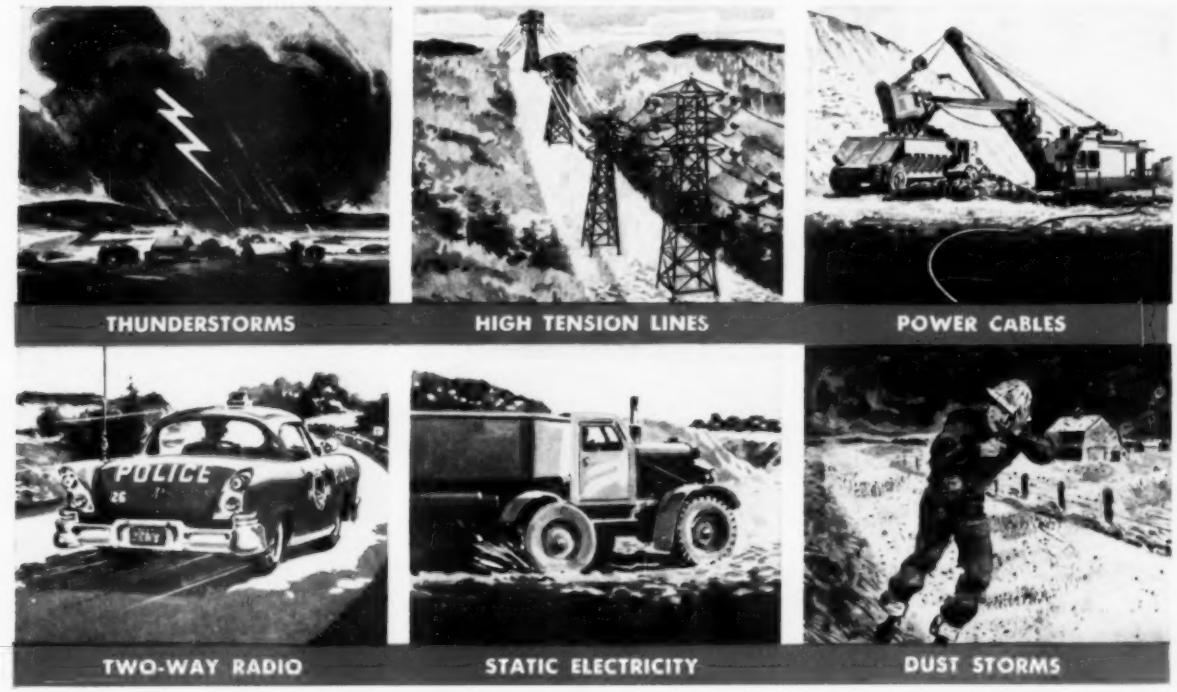
Manitowoc shovel cuts a 1' x 1' slope through stratified hard sandstone. Thirty per cent of the excavated rock is used as fill.

Manitowoc

MANITOWOC ENGINEERING CORP.
(A subsidiary of The Manitowoc Company, Inc.)
MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
20 TON - 100 TON	½-YD. - 5½-YD.	½-YD. - 6-YD.	½-YD. - 2½-YD.

Guard against these stray current hazards!



Hook-up and detonate with Primacord!

Blasting authorities recommend the use of Primacord wherever extraneous electricity may be encountered. These unwanted electrical currents can be caused by lightning several miles away — by static due to moving belts, automobile tires, dust storms and even snow storms. Two-way radios, high tension lines and power equipment cables all present stray current hazards.

With Primacord as the detonating agent, you can load and fire when ready without danger from stray currents. Primacord is relatively safe to handle and store. It cannot be set off by *normal* vibration or friction, ordinary impact or sparks, but must be detonated with fuse and cap or electric blasting cap. It is not affected by stray electrical currents, and — according to all available records — has never been fired prematurely by lightning.

Your explosives supplier can give you further information and service. Use coupon for a free copy of the Primacord Sample Kit.

THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut

Please send me the Primacord Sample Kit, free.

Company .....

Address .....

.....

Attention of ..... Title ..... P-o

From one to a fleet

with Allis-Chalmers Construction Machinery

Starting with a single tractor-dozer in 1949, R. Sam Krage Company of Sioux City, Iowa, now owns a fleet of Allis-Chalmers construction machines. Sam Krage attributes much of his success as a dirt mover to the operation and performance of his equipment, and to the top-notch service his Allis-Chalmers dealer provides.

Sam Krage, Sioux City, Iowa

Big TS-360 motor scrapers are heaped to 20-yd capacity with help of the 225-hp HD-21 crawler tractor. Krage especially likes the ease with which these machines handle wet dirt.

Look ahead... *move ahead*...and stay ahead

Top production, day after day makes Allis-Chalmers tractor-dozers, like this HD-11 shown spreading fill, Krage's choice.

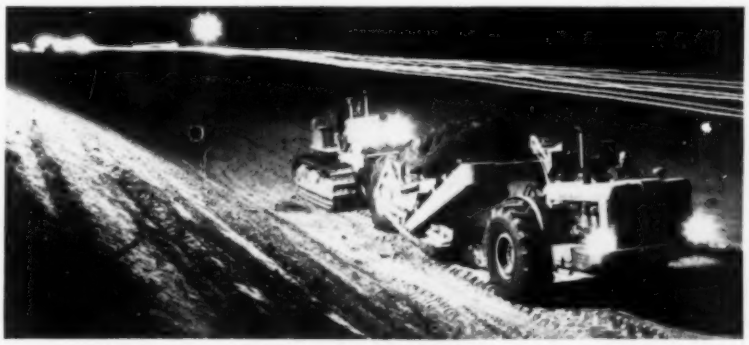
On air base job, the Forty Five motor grader kept haul roads smooth, allowing the TS-360's to travel safely at high speeds.

Top production record on a wide variety of jobs

From small farm pond and dam construction with his first tractor, Krage branched off into clearing work for highway contractors. Since then he has moved into highway grading himself, both in Iowa and South Dakota. He also has done levee work on the Missouri River, and most recently handled a big air base job at Sioux City.

In this wide range of construction jobs, Sam Krage says he has benefited from an outstanding "time-on-the-job" record from his Allis-Chalmers equipment. Best proof of his confidence is the well-balanced fleet of Allis-Chalmers machines he now owns . . . big motor scrapers, crawler tractors, pull scrapers, and heavy-duty motor grader.

A number of the motor scrapers are TS-260's—rated 11 yd struck, 14 yd heaped. On a recent 800,000-yd highway job in Iowa, Krage says these machines loaded, hauled and dumped at the rate of 55 trips an hour on a 1,400-ft haul. On the Sioux City air base job, his TS-360's (15 yd struck, 20 yd heaped) handled 450 loads a day on average hauls of 1,600 ft.



Krage's teams of HD-21's and TS-360's kept production rolling on a night operation at Sioux City air base.

Easy handling makes a big hit with operators

Krage says his operators like the way their Allis-Chalmers equipment handles, and that means extra production.

On the air base job, they were able to utilize the top horsepower-per-yard ratios in the TS-360's and TS-260's. Results—even in wet material, they loaded and hauled easily . . . and with positive, forced ejection, plus high apron opening, unloaded fast and clean.

Features designed for the operator's benefit on Allis-Chalmers tractors and motor graders are also considered important by Krage and his men. Torque converter drive on the HD-21 and HD-16 crawler tractors . . . and new toggle-type controls on the Forty Five motor grader are two examples. Both have the same effect—easier operation, more production.

Proved quality in parts and dealer service important factor

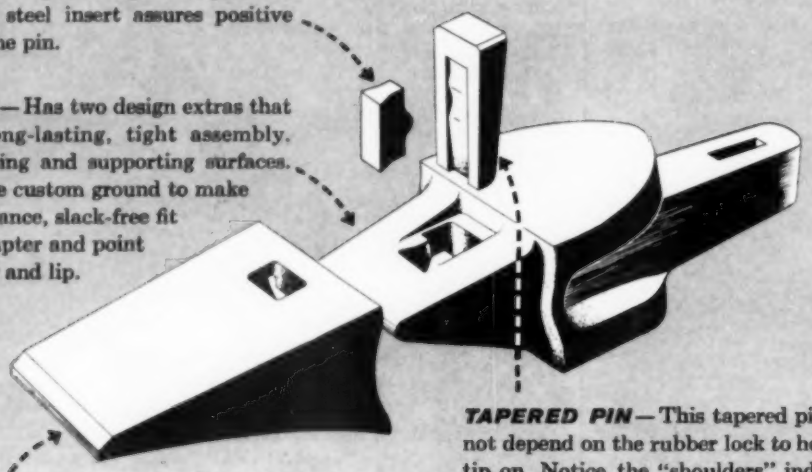
Sam Krage made his first extensive purchase of Allis-Chalmers equipment in 1952, was so well satisfied with its operation and performance that he has continued to purchase it.

Krage says that parts availability and prompt dealer service figure high with him in purchasing the type of equipment he needs in his work. In both respects he's had extremely good relations with his Allis-Chalmers dealer.

Your local Allis-Chalmers construction machinery dealer is ready to help you with equipment and application recommendations, around-the-clock parts and service. Call him now for a working demonstration of the performance that sold Sam Krage. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

with ALLIS-CHALMERS

NEW AMSCO® 2 PART TOOTH



PIN LOCK — Special high-strength rubber with a steel insert assures positive locking of the pin.

ADAPTER — Has two design extras that assure a long-lasting, tight assembly. Larger bearing and supporting surfaces. Adapters are custom ground to make a close-tolerance, slack-free fit between adapter and point and adapter and lip.

REVERSIBLE TIP — Enables you to get longer digging life while maintaining sharpness.

TAPERED PIN — This tapered pin does not depend on the rubber lock to hold the tip on. Notice the "shoulders" indicated on the front of the adapter . . . and the mating shoulders on the pin. These shoulders lock the tip in place with metal-to-metal contact. The rubber lock, in turn, locks the pin in place.

3 big features for fewer shovel shutdowns

1 You get up to four times extra wear over other 2-part teeth. We cast these new teeth of a tougher, new and special heat-treated alloy that slashes your replacement and maintenance costs.

2 These reversible teeth stay sharp, to penetrate cleanly and easily without straining your shovel. Reversing point is easy. This reversible feature is particularly important on corner teeth. It maintains digging efficiency throughout tooth life.

3 Positive locking device — Amsco's unique pin-locking design secures tip to adapter in tight, positive, metal-to-metal contact.

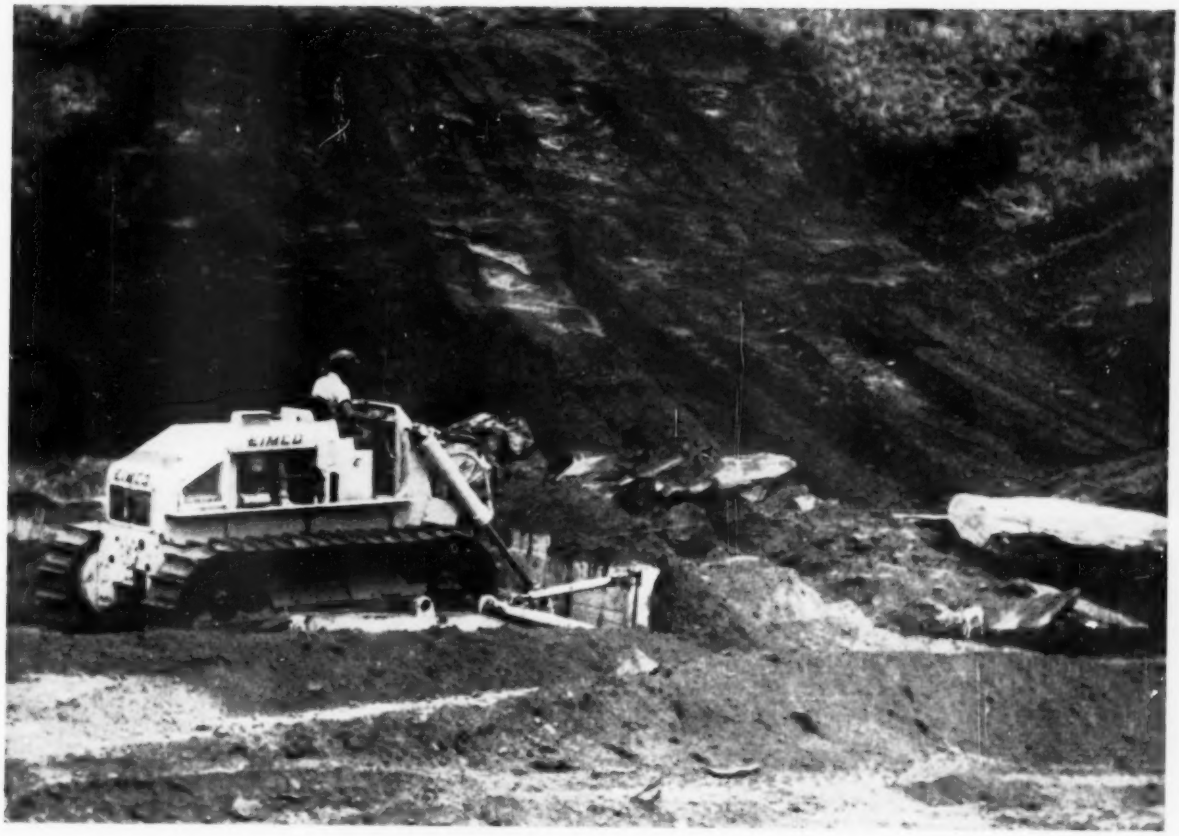
Order the Amsco 2-part Simplex from your local power shovel dealer.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC



TOMORROWS BULLDOZER—TODAY!

"THE BULLDOZER OF THE FUTURE" this is the way one Road Dept official described the Eimco 105 when he saw it operate on competitive tractor tests. Here, once again, the Eimco 105 Dozer has demonstrated superiority over conventional type tractors. In job after job, the 105 consistently proves that its simplicity of operation, smooth power flow, visibility, maneuverability and reduction in operator fatigue is the difference between marginal production and profitable production.

The work site consisted of a steep incline with rock outcropping in big slabs. The bottom ends of the rocks were deeply embedded and required maximum tractor effort to remove them.

Bulldozing down the slopes, the torque converter drive of the 105 enabled it to pick up a capacity load and move down the slope ahead of the competitive tractors with their outmoded conventional type drives.

Throughout the test — straight bulldozing, removing rocks and maneuvering — the 105 managed everything that came its way and did it with the least amount of operator effort. In direct contrast, the competitive tractor operators were constantly clutching, changing gears and braking to accomplish their tasks.

Eimco's Unidrive constant mesh transmission gives variable speed independent track control without clutching and shifting. Let us demonstrate this tractor.

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

New York, N.Y. Chicago, Ill. San Francisco, Calif. El Paso, Tex. Birmingham, Ala. Duluth, Minn. Pittsburgh, Pa. Seattle, Wash.
Cleveland, Ohio London, England Gateshead, England Paris, France Milan, Italy Johannesburg, South Africa

EIMCO

B 330

Where Traffic Now Hums Over New Haven's Waterfront. Scenes like this were so familiar during the building of the Connecticut Turnpike. The one shown here is New Haven's waterfront section as the Quinnipiac River Bridge was nearing completion. The bridge's center span, measuring 387 ft, is the longest continuous plate-girder span in the country.

That big girder being hoisted above the channel weighs 89 tons. The span has four such units, side by side, joined at both ends to 140-ft cantilevered arms. Bethlehem wire rope—tough, flexible, and strong—was given the task of lifting these girders and other heavy loads. The ropes on the two big travelers were Purple Strand grade, Bethlehem's improved plow, which is always recommended for jobs of this nature.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING

MORE BUCYRUS-ERIE SHOVELS WORK IN ROCK THAN ANY OTHER MAKE!

. . . your proof of performance from owners!

Bucyrus-Erie grew up in rock, on the Panama Canal, on the Mesabi Range, and on scores of major construction projects which have changed the shape of the earth. Throughout this history, Bucyrus-Erie has continually met the demands of bigger and tougher jobs!

Today's Bucyrus-Erie heavy-duty shovels offer modern front-end design to give you plenty of strength, reduce deadweight, let you move big yardages with minimum effort. Bucyrus-Erie improved Ward Leonard electric control gives you fast acceleration and deceleration with extra torque when it's needed.

Every Bucyrus-Erie is designed with a thorough knowledge of the jobs you have to do and conditions you face!

Write today for complete information about the Bucyrus-Erie excavator you'll need for the big jobs you're bidding right now. There's one to handle your job whatever the size. 193L58C

A Familiar Sign . . . BUCYRUS ERIE *. . . at Scenes of Progress*

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

Outside Camarillo, Calif., U. S. 101 is being relocated and improved. J. E. Haddock Ltd. is handling 5-mile project, moving a million and a half cu. yd. — mostly rock. Haddock moves about 7,000 cu. yd. a day.

Four CAT D9 Tractors are on the job here, along with five D8s, three No. 12 Motor Graders, three DW21s with Scrapers, three DW21s with Athey PR21 Wagons, and a D13000 Caterpillar Diesel Engine.

Two of the three Caterpillar DW21 Tractors with Athey PR21 Wagons loading up for another fast rock haul on U. S. 101 project. Conditions like this explain why Project Supt. Saul says he picked Caterpillar for its "ability to do the tough work."

Athey PR21, teammate of DW21 Tractor, can haul 34 tons of rock or other material efficiently. On this job it hauls about 18 cu. yd., making 1-mile round trip in about 12 minutes—against a return grade of 12% in places.

RELOCATING U. S. 101

"This job is plenty tough. We called on Caterpillar-built equipment for this one. We get good service with very little down time—and then our Caterpillar Dealer goes all out to see that our machines are back at work as soon as possible."

Project Supt. Neal Saul's words should ring a bell for you, too. See *your* dealer for the machines that handle the tough jobs in stride. See him for replacement parts you can trust. See him for the fast, thorough service that keeps your machines making money.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

WHEN THE JOB IS PLENTY TOUGH

D9 with No. 9S Bulldozer moves rock in a hurry. The LOAD SHAPE No. 9S is a 14-ft. blade with a cutting edge made of "Hi-Electro" hardened steel. A push cup mounts easily, right onto the blade, when desired. The D9 delivers 320 HP at the flywheel. With its optional three-stage torque converter, the D9's output is automatically matched to the load.

Excavating Engineer

founded 1905 NOVEMBER 1958

Barge-mounted Bucyrus-Erie 54-B crane drives 13-in. diameter wood piles for Port Authority's new cargo pier 1 in Brooklyn.

Brooklyn Waterfront Gets New Look

NEW York's Brooklyn waterfront is the scene of an $85 million facelifting project, currently in its early stages, sponsored by the Port of New York Authority. Docks along the 40-ft. deep Buttermilk and East River channels, in an area extending two miles south of the Brooklyn Bridge, are being demolished and replaced with structures incorporating the latest thinking in marine cargo handling facilities.

The docks are being built for lease to private operators by the Port Authority, which is a bi-state agency in charge of the development of the New York-New Jersey harbor area.

The Brooklyn piers program, which began last year, is the biggest marine development ever undertaken on the New York side of the New York-New Jersey harbor. It calls for the construction within a seven-year period of 10 wide, single-story steel and concrete structures, all fully fire-resistant, to replace 25 obsolete piers. One pier now existing will be completely rehabilitated. In addition, 45 acres of upland area behind the docks will be cleared to provide badly needed open storage and truck parking space.

The piers already wrecked or marked for demolition range in age from 36 to 66 years. Some of the adjacent ware-

Contractors are ripping out antiquated ocean freight terminals built during the last 60 years, replacing them with 1960-model steel and concrete piers for the Port of New York Authority.

houses serving them date back to the Civil War era.

Altogether, there are planned 25 modern, efficient vessel berths to replace the 44 which existed before the Port Authority took over. Even though the number of berths is being reduced, the facilities will handle more shipping capacity than before because the new design allows more room for vessels and longshoremen to maneuver. Dockings and departures through the tide-swept Buttermilk and East River channels will be faster since average slip distance between piers has been increased to 300 feet, giving 100 feet more clearance than formerly.

Increase Space

Buildings to be erected on the new piers will furnish about 2 million square feet of shedded storage space—about a one-third increase in room. The 45 acres of cleared upland area will also contribute to cargo handling speed by allowing adequate parking and loading space for the trucks which now jam Brooklyn streets nearby. About 80% of all goods on the piers are dispatched and received by truck.

When the Brooklyn construction program is completed in 1963, the new piers will service 2½ million tons of high value ocean cargo annually. This represents a large chunk of the port of New York's foreign trade goods, which in 1957 amounted to 36 million tons worth $9 billion.

It is estimated that steamship companies leasing the improved terminals will save at least $5 million a year in operating costs. An additional $1 million a year will be saved through elimination of truck traffic delays on Brooklyn's waterfront streets.

At the present time, one pier is finished and construction is underway on four other piers. Pier 11, costing $8½ million and dedicated last June, is now operated by the Maersk Line, a Danish shipping firm serving ports of the Far East. Piers 1, 2, 3 and 10 will be ready for use in 1959.

Pier 1 is the largest of the current construction and its construction problems are typical of the entire group. It is an L-shaped structure located just south of the Brooklyn Bridge at the northernmost end of the Brooklyn-Port Authority property. This $7,350,000 pier will provide two berths along its 1,090-ft. frontage facing west toward New York Bay, and a third berth on its 570-ft. south side. Width of the slip on the south side will vary from 220 feet at the inshore end to 350 feet at the outshore end.

The pier is being built primarily on solid fill retained by a sheet steel bulkhead. It will be served by aprons 30 feet wide and a shedded area of 256,000 square feet. A truck loading platform, 980 feet long and 20 feet wide, on the land side of the cargo building will be capable of handling about 70 trucks at one time. Backup spots will be provided at the southeast end of the building for nine additional trucks. The building will be steel framed with corrugated aluminum sides and roof, and the deck will be asphaltic concrete. To the rear of the building will be approximately 200,000 square feet of paved upland area to accommodate trucks and cargo.

Work began on the new pier in spring

Manitowoc crane equipped with a 1¼-yd. Haiss clamshell bucket removes sand fill from within bulkhead area to permit installation of steel tie-rods between dock walls.

Manhattan's skyline provides backdrop for the Brooklyn-Port Authority's $85 million pier development project. Pier 10 bulkhead construction is in middle foreground. Pier 1 work is farther up the East River near the Brooklyn Bridge at upper right.

Part of pier 1 deck rests on composite piles consisting of concrete pipe placed on timber pile-stubs. Insley 2-yd. laydown bucket fills the pipes with concrete. The 2 x 12 wood lagging hung on pipes will support the pour for a 12-in. deck slab.

of 1957. It is located on the site formerly occupied by old Piers 3, 4, 5 and 6. Warehouses built during the 1860's have also been demolished behind the pier in order to provide the upland area required to serve the facility.

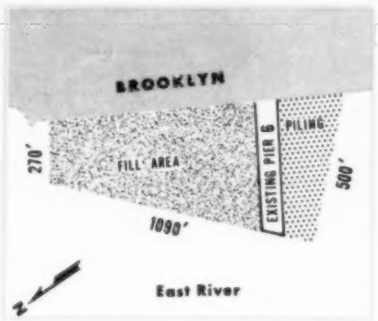
Separate contracts were awarded by the Port Authority to cover various phases of the construction.

The preliminary step of removing the four existing piers was handled last year by Allen N. Spooner & Son, Inc., New York. Next came dredging of the site of the bulkhead enclosure and placement of sand fill. A $1,035,230 contract negotiated for the work was performed by Great Lakes Dredge & Dock Co., New York, the only contractor in the harbor area with a dipper dredge available. The work included dredging out of 220,000 cubic yards of silt from the East River. About five feet of material were scooped out of the river bed to bring the underwater fill area of the pier to a uniform depth of 30 feet. Replacement of the silt by solid material will prevent any settlement of the fill.

Sand fill was obtained from the ocean about five miles off Coney Island. Construction Aggregates Corp. pumped about 300,000 yards, a portion of which was dumped as backfill. The remainder was surcharged on the river bank along the dock to await installation of sheet-piling along the dock walls.

Horn Construction Co., Inc., Merrick, L. I., is the main contractor doing the actual pier building. It holds a $1,983,775 combined contract for pile and deck construction and for building 1,260 feet of bulkhead required. The firm began its contract in October 1957 and its work is substantially complete.

Wood piles were a major item in Horn's contract even though the north portion of the pier is being built on fill. This situation is explained by the fact that an existing pile pier, which is structurally sound, is being incorporated into pier 1 and enlarged.



Existing pier 6 is a finger pier pointing out into the East River and resting on wood piles. These pilings and the fill area of the new pier butt against each other as shown in the diagram above. Wood

Artist's rendering shows spacious, wide appearance of new piers. Horn Construction Co. is building the substructure of Pier 1.

Short lengths of Bethlehem ZP27 piling are moved around the job site by a Michigan 175A fork-lift tractor. Also on the job are an Allis-Chalmers HD-20 and a Cat D8.

sheeting was driven as a retaining wall between the fill and the piling of the old pier. Additional fill material was used to bring the deck of the old pier structure up to the elevation of the new deck. A large number of wood piles were also driven alongside the old pier structure to enlarge its area and realign it into the new overall deck design.

According to Nils Danielson, superintendent for Horn, some 1,400 timbers ranging in length from 65 to 90 feet were installed on the south open end of the dock.

The new section of dock built on these piles is protected from fire because it is designed with a reinforced concrete deck supported on composite-type piling. Each composite pile consists of the usual creosoted wood pile with a concrete upper-section above low-water mark.

Cap Piles

After driving the wood piles, the Horn firm cut them off at about three feet above low water and capped them with short lengths of 20-in. ID precast concrete pipes. These pipes were then filled with mass concrete and subsequently tied into the new flat-slab reinforced concrete deck.

Various steps in construction took place in the following sequence. First, the big job of driving wood piles was begun by a barge-mounted piledriver. The piledriver was a Bucyrus-Erie 54-B crane equipped with 60 feet of boom and 90 feet of leads. A 900-cfm Chicago Pneumatic air compressor, mounted on the rear deck of the crane, powered a McKiernan-Terry 10B3 hammer. The machine was mounted on a 42 x 154-ft. barge—known as a "half-car float."

The car float afforded a good measure of stability to the 54-B crane since it was heavy enough to absorb river swells. The crane was placed on a mat of 12 x 12 timbers. The 54-B has an extra-long crawler mounting. The side frames are 21 feet 6 inches long and the tracks have 36-in. wide treads. This extra long and wide mounting gives the machine greater piledriving capacity and stability.

After completing the major pile work, the 54-B became a floating crane, installing tie rods and wale assemblies for

Continued on page 56

A sand-filled bulkhead forms one end of pier 1. The 54-B crane with 100-ft. boom and 30-ft. jib, installs tie-rods joining the sea wall and the anchor wall on shore. The sea wall uses 67-ft. lengths of ZP38 sheetpiling; anchor wall 16-ft. ZP27 pilings.

Canals That Never Rest

by Floyd Suter Bixby

OF all the public utilities in Wyoming, you'd probably never guess which requires the steadiest maintenance. It isn't highways, airports, transmission lines, telephone service or even sewers. It's irrigation canals. And no one knows it better than the men who work them winter and summer.

Midvale Irrigation District, at Pavillion, is such a typical utility. The district takes in a long, narrow basin surrounded on all sides by dry, drab Wyoming buttes. Some 60,000 acres of the United States Bureau of Reclamation's Riverton project lie in Midvale Irrigation District, and the usable land area is growing steadily. This year the district will spend $190,000 for direct maintenance and $500,000 for maintenance-betterment-construction work. It will also do considerable work for its farmer members whenever equipment is available.

In many irrigation districts, maintenance work comes to a standstill when the water is turned off in the canals. Not so at Midvale. When the water's turned off, work really begins and reaches a peak in midwinter. It's then that major asphalt lining is placed in the canals. But we're getting ahead of the story.

The feasability of developing a flourishing agriculture in the great central-Wyoming basin started as an idea around the turn of the century. It was not until 1924, however, that the first work was really started. Bull Lake Reservoir, which impounds 150,000 acre-feet, was created in 1935 and the Wind River Diversion Dam a few years later.

In the district, there are 55 miles of main canal, comprising man-made rivers up to 2,200 cfs, which ring the district on the north and south. Feeding the fertile acres are some 22 miles of laterals, and there are also 180 miles of open drain ditches to carry the excess water away which is applied during irrigation. That's always one of the headaches of an irrigation district.

In building the project, the USBR created a 2,000-kw power plant within Midvale Irrigation District. There's a much larger power plant nearby at Boysen Dam—a part of the Riverton project. Power revenues, however, do not apply to repayment of construction costs, which under the present contract will spread over a 100-year period.

The type of agriculture in the district is firming up fast, particularly under economic pressures of the recent recession. There have been a great number of changes since the first settlers entered the lands in 1926. At that time about a dozen families homesteaded in the area. Many now valuable farms lay idle and untenanted as the depression years of 1929-33 failed to attract newcomers. When the major drought and dust

(Above) Osgood model 200 dragline works to keep drainage canal open. (Below) Bucyrus-Erie 30-B with 1¼-yd. Hendrix open-type bucket is used for heavy digging.

Wyoming irrigation district works winter and summer to keep open miles of lifelines.

storms of the 1930's came to Kansas and Oklahoma, there was a large influx of settlers to Paradise Valley and the Pilot Canal sections of the district. Many of these families remain, along with other newcomers.

This rich, attractive expanse of land already has grown about $30 million worth of crops. Bureau of Reclamation economists say that income taxes already paid on income from the land probably have more than justified the cost of the project. But the people are paying their income taxes and their construction repayments, too; a payment has never been defaulted.

Good Farmland

The land is excellent for growing alfalfa, small grains and corn silage. Dairying is growing in importance in the valley. Another new industry is the feeding of beef cattle for final marketing. All of this, of course, takes water, and that's where canal maintenance comes in.

Maintenance of Midvale's canals has had definite purpose and direction ever since the Bureau of Reclamation completed its basic construction work and turned the system over to the district for operation and maintenance. One of the first things the district did was to hire Karl Powers, one of the Bureau's engineers who had been associated with building of the project in just about every capacity possible. He was intimately familiar with the project's layout, its construction, its soil types and probable trouble spots.

A basic maintenance policy was formulated at that time. It consisted of a plan to never let the canals deteriorate. That meant keeping weeds and brush down, keeping the canal sides and bottoms cleaned and silt removed. Some 4,000 concrete structures, consisting chiefly of drops, also had to be maintained. For several years labor crews were used for almost everything.

In 1937, the first machines made their appearance in the form of Bucyrus-Ruth ditch excavators, which were used with considerable success in maintaining the canals. The years of World War II gave Midvale's maintenance a terrific setback. Powers was gone four years, directing engineering construction on military bases in Utah. Equipment was impossible to get. Parts supplies were worse. When he returned to pick up the reins again, the district's canals were in the same shape to which highways and other public utilities had deteriorated—they practically needed rebuilding.

"Willows had grown up as far as you could see," Powers explained, "and noxious weeds were everywhere. Russian thistle, Kochia weed and brush choked the canals. We had two sizable ditches so stuffed with willows and weeds we couldn't get any water through. So I believe you can say that 1946 was the year our maintenance program really started with a purpose."

Maintenance today is an outgrowth of that start. A local farmer who showed ingenuity and aggressiveness in weed control on his own farm gradually worked into a position where he now uses four trucks and two tractors with spray equipment to do weed control for the district and practically all the farmers in the area. Under Powers' direction, he started a no-holds-barred annual spraying program. It was found that if willows were sprayed in the early spring, when their shoots were tender and green, that one application of 2,4-D would kill the growth. The spraying program didn't stop there, either. It carried right on, as soon as the willows dried, with a burning program. Flames removed the last vestige of brush right down to bare ground. Native grasses have since taken over, and, where their growth is not rank, further canal maintenance has been drastically reduced.

Today there are only two minor

Peerless dredge scoops material off canal slope. About 100,000 yards of silt are removed from canal system every year.

Here's how ingenuity speeded up a time-taking task. Machine has special home-made dipper which can dig out 1¼ to 1½ cubic yards of weeds and muck at a pass.

patches of willows left in the entire district, and they are being rapidly eliminated. Maintenance costs have dropped steadily as the brush has been whipped, and the short native grasses took over the canal sides.

Two methods of canal side maintenance are currently in use. For over 10 years now the district has standardized on draglines for this type of maintenance. Recently a Peerless dredge also was purchased. Draglines include a new Bucyrus-Erie 30-B, which uses a 1¼-yd. Hendrix open-type bucket; a Bucyrus-Erie 15-B, rigged as a hoe with a special over-size silt bucket; a 1-yd. Bay City 62, which is now an old machine and is soon to be traded off for a new dragline and an Osgood 200.

Karl Powers bosses maintenance for district's 55 miles of main canal, 222 miles of laterals and 180 miles of drain ditches.

This fleet of draglines makes available a machine of every convenient and practical size for work of many types. One of the big jobs for draglines is the construction of drainage ditches throughout the district. The 30-B is available for heavy, hard digging, and it will be able to handle even harder digging in the future because a new Bucyrus-Erie 1-yd. medium bucket is to be purchased. The smaller machines, of course, can handle smaller jobs.

Build Special Dipper

The special home-made bucket for the 15-B was built under Powers' supervision in the headquarters shop at Pavillion and will scoop out about 1¼ to 1½ cubic yards at a pass. It is a wide, shallow, curving type of bucket, and does a beautiful job with the machine at right angles to the ditch. On the day the pictures for this article were made, the machine cleaned both sides and the bottom of a sizable delivery canal, finishing 2,000 linear feet in less than an 8-hour shift. Its performance is coming very close to that of the Peerless dredge.

In an average year, the machines will remove about 100,000 cubic yards of silt which settles in the canal system. Some weeds and sod from the bank sides also are removed. The heavy silt load is a major problem in this district because some of the reservoirs are muddy at the start of the irrigation season. The sandy silt, which contains silica, garnets, rubies, emeralds and other precious dust, is extremely abrasive, so that one of the main jobs of preventive maintenance is weekly hardfacing.

Another ingenious maintenance trick, conducted in recent years, has been the use of asphalt undersealing beneath banks and bottoms of canals which were leaking. One of the main canals is situated on a high embankment above a highway, and leakage along the canal created a serious problem. This section of the main canal feeds the small 2,000-kw powerhouse. It must stay open in winter. At first, Powers thought he had all the problems whipped on that location, after he'd rigged electrically-driven outboard propellers to keep slush ice moving in extreme winter weather. But the concrete lining of the canal contracted in winter, too, letting water seep through the joints. There was a two-mile section of highway that was loaded with ice all winter long.

The district has two air compressors, a Chicago Pneumatic 105 and a Jaeger 125 rotary, and an adequate supply of jack-hammers and air tools. It brought these machines in, and crews drilled holes through the lining on 8-ft. centers. Hot asphalt then was pumped at 100-psi pressure under the canal lining, filling up all voids in the soil and extruding again through the expansion and contraction joints. It did the job beautifully. The bank has since dried up completely and there is no longer a winter ice problem along that highway. Other canal sections where leakage has been a problem now are getting the same treatment.

The annual half-million-dollar maintenance-betterment program of canal lining is designed to improve the water carrying ability of the entire system as

Workmen apply hot catalytically-blown asphalt to canal. This underseals banks and bottoms in areas where seepage has caused trouble to adjacent farm country.

the years go by. In other words, the canal system is not deteriorating; it is being improved steadily. The work is being carried out with the assistance of Bureau of Reclamation engineering and with financial assistance from the federal government.

Canal sections picked for this work generally are located above adjacent farming country and are in areas where percolation through the soil has been great. Each summer a construction program is set up for the winter ahead. As the work is done, it keeps every key man in the district on the payroll on a year-round basis.

The work is not too difficult. After grade stakes are set, the sides and bottom of the canal are over-excavated about 18 inches, usually by the 30-B dragline. The district also has a Hough HR loader, along with three Cat D8's and two D6's, which help out. There are also three scrapers of 6, 8 and 14-yd. capacity. The machines are moved in by two lowboy trailers, towed by International L-190 and GMC 950 tractors.

Check Seepage

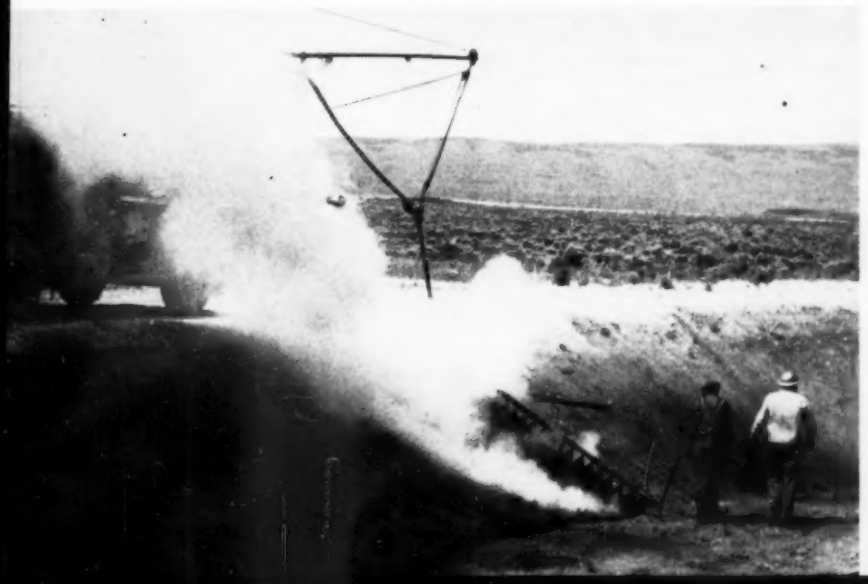
When the sides and bottom have been over-excavated to true grade, hot catalytically-blown asphalt is brought in and applied by pressure distributors. It takes about three passes to put the blanket of 1.5 gallons per square yard on the canal sides; the bottom is usually shot in a single pass. This gives a continuous resilient watertight membrane about ¼-in. thick. When it is in place, the canal sides and bottom are backfilled about 12 inches with a good clean grade of gravel or other granular material. Canals which have given nothing but seepage trouble to adjacent farming country have tightened up miraculously with this treatment. Nearby farms on the verge of bankruptcy have come back again.

Operating in reverse to many an irrigation district, Midvale reaches its busiest work peak in January and February. The lining program, at a peak at that time, is pushed rapidly to get the year's programming finished before the irrigation season starts again in May.

Along with canal operation and maintenance, a well-rounded preventive maintenance program on equipment also is conducted. One man has supervision over all equipment operation and maintenance, including the Pavillion headquarters shop. He also exercises some supervision over maintenance and construction, acting as Powers' assistant.

Summing up, Midvale Irrigation District has proved beyond a reasonable doubt the wisdom of mechanizing its maintenance, doing all the construction-betterment which money will allow and conducting an all-out weed control program to reduce later amounts of money needed for that work. On the basis of Midvale's experience, there is no doubt whatever that all these things are a good investment for the district, tend to hold down costs in the long run and make the supply of water to irrigation users more firm and predictable.

Powers, as project manager, is responsible to what he says is "the most competent irrigation board in business anywhere." Willis A. Davison is president of this board, with E. R. Schamber as vice president and R. H. Pattison as secretary-treasurer.



About a ¼-in. thick watertight membrane is put on canal sides. It is shot in three passes; bottom is shot in one pass.

Blast Expressway Through Boston Granite

Massachusetts contractor digs stubborn granite at suburban end of Southeast expressway. C. J. Maney section is one of eight contracts on the 15.5-mile long road project along coast.

SEAM-FACE granite on Boston's Southeast expressway is making what otherwise might be an ordinary road job into a tough but interesting rock excavation problem.

C. J. Maney, Lexington (Mass.) contractor, has about 100,000 yards of the hard to blast, hard to dig material in less than two miles of roadway. All of it is in relatively shallow cuts and ledges which call for many man-hours of drilling and shovel-truck loading.

Character of the rock varies greatly, even in the same bank. Much of the rock is solid granite which blasts according to the rulebook. But running through it are veins or seams of fissured material whose behavior is highly unpredictable for powder crews. Dynamite loses much of its effect because the seams dissipate the force of the explosive gases.

"In most places we can't shoot a bank without the necessity of going back and doing some secondary work," was the way Paul Peterson, grade foreman for Maney, summed up the situation.

The metropolitan area has a reputation for tough highway cuts because of the presence of underlying rock. It's a common saying that a Boston contractor can't even dig a house basement without hitting ledges.

The Maney firm, which has handled some of the city's biggest grading jobs, is no stranger to rock. Progress on its expressway section has been good. The job is running slightly ahead of schedule, according to Bill Hagan, general superintendent for Maney.

Runs Along Bay

The Southeast expressway project is a double-barreled limited access highway 15.5 miles long. It will act as a giant traffic syphon bringing vehicles from the outlying communities bordering the seacoast into the metropolitan area.

In downtown Boston, the expressway connects with the famed Central Artery often called the most expensive piece of highway in the world. Pointing outward from the business area center, the expressway passes through Dorchester, Neponset, East Milton, West Quincy, Braintree, Weymouth and then terminates in Hingham.

In Braintree, the expressway makes a connection with the Circumferential Highway—Route 128—which is a belt route around Boston. Route 128 is being extended and expanded from a single pavement to a divided highway in the Randolph-Braintree area.

Total cost of the Southeast expressway will be $60.3 million. The road is designated federal aid route 78 and its cost is to be shared equally by the commonwealth of Massachusetts and the federal government. The road is not part of the interstate system but comes under the so called ABC program of federal aid to primary highways, secondary feeder routes and urban highways.

Massachusett's share of the cost will come out of a $200 million public works bond issue which was floated in 1956.

While most of the expressway will be ready for traffic at the end of the year,

Roadway excavation material is loaded into a 15-yd. Euclid by 2-yd. 51-B shovel. Blasted granite breaks into huge slabs.

Joy T-500 rigs drill 4-in. diameter holes in granite at rate of about 20 feet per hour. Drilling is subbed to Rowe Contracting Co.

the southern portion located within the corporate limits of Braintree, Weymouth and Hingham will not be completed until 1960. The Maney contract is within this area of newest construction.

There are a total of eight contract sections on the expressway. Maney's 9,016-ft. job is the next to the last of these at the suburban end of the expressway. It is located entirely within the township of Weymouth. Construction costs run an average of $7 million a section over the length of the project. The Maney contract, however, will cost only about $2 million, including right-of-way and engineering.

Average per mile cost of the entire project is $4 million. Because Maney is putting his 1.7-mile road through an area of wooded hills, right-of-way costs are low and the road design relatively inexpensive compared to urban construction.

The job is not without problems, however. Besides rock excavation, there is the complicating factor of a river running through the job for over half a mile. The roadways of the double-barreled highway run away from each other for some distance because of the presence of Old Swamp River in the median area. Numerous drainage structures must be built under the highways and the river itself is being cleaned out and straightened for a distance of several miles.

Major item in the job quantities is unclassified excavation amounting to 196,000 yards. The unclassified item includes both roadway excavation and ledge rock. When bids were taken on the job by the Massachusetts state department of public works, contractors were required to estimate the volume of rock in the unclassified total in figuring the bid prices. Letting of the contract with excavation in an unclassified category saved many hours of engineering calculations for the state.

Unclassified bidding, of course, puts the contractor on the horns of a dilemma. Bid the excavation job too high, and you lose the job to your competitor. Bid too low and you're digging tough rock for the price of dirt.

The Maney people seem to have sized up the job correctly. The percentage of rock dug so far has been close to their estimates.

All of the ledge is being used as fill material for embankments with the larger pieces of stone going into the bottom of deep fills. Excavation and fill requirements will not be balanced, however. About 197,000 yards of ordinary borrow and 50,000 yards of gravel borrow will be needed for the roadway foundation.

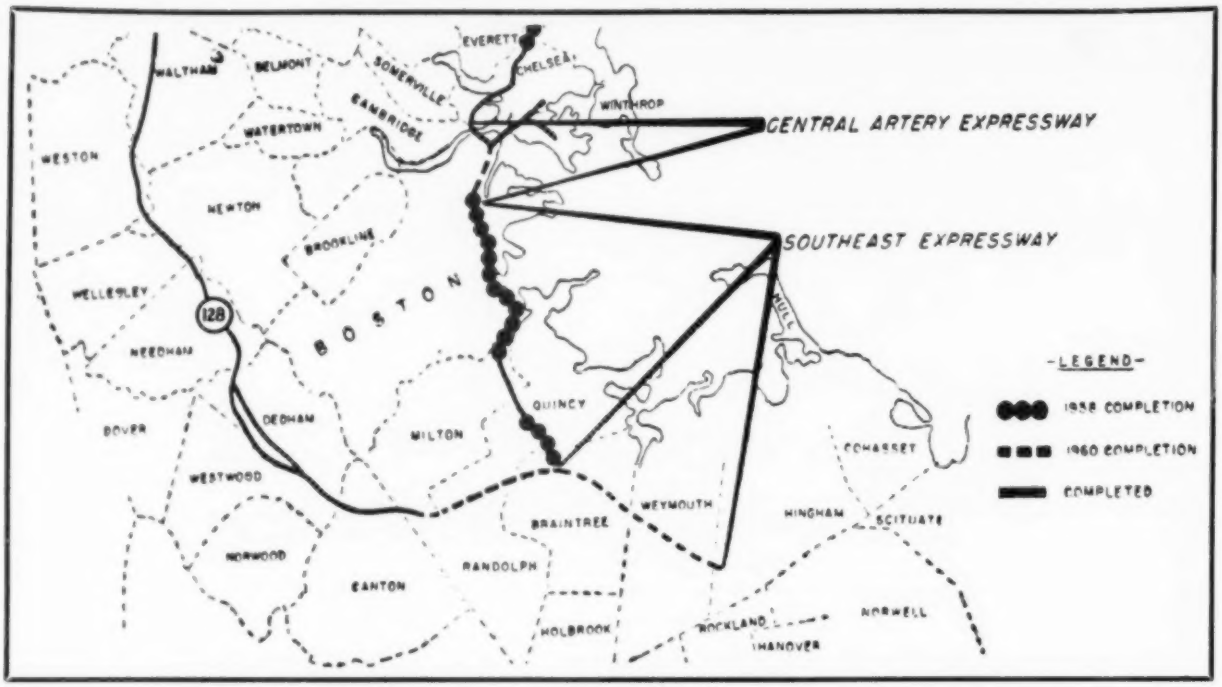
Shallow Cuts

Largest rock cut on the job is about 800 feet long and consists of about 50,000 cubic yards. Depth is 43 feet.

Other cuts run only about 16 to 18 feet.

Loading shovels are two Bucyrus-Erie 51-B machines with 2-yd. dippers. Working under the shovels are three

Rock end-dumped by Euclids is dozed level by an International TD-24. About 100,000 yards of rock are going into embankments with larger pieces at bottom of deep fills.



Southeast expressway is high-speed traffic link between Boston and suburbs. It is 15.5 miles long and will cost $60.3 million.

Euclid R-22 end-dumps with General Motor series 6-110 300-hp diesel engines and Torqmatic transmissions. Payload capacity is 22 tons or 15 yards. At the time *Excavating Engineer* visited the job, the Eucs were practically brand new with less than 200 hours on them. For shorter hauls, two Athey PR-21 rock wagons of 21-yd. capacity pulled by Caterpillar DW21 wheel tractors were also in use. The rock wagons worked out well because excavation and hauling were often kept confined to a limited area of only several hundred yards.

Average hourly production for each of the 2-yd. shovels in well-blasted material was about 400 yards with a 15-yd. hauling unit loaded every two minutes. The shovels were frequently hampered by oversize material too large for the dippers. Mammoth-size natural boulders abound in the area and the seam-face rock had a tendency to come out in big chunks after being shot.

Use Tooth Caps

Ralph Rand, master mechanic on the job and a veteran of 19 years with Maney, keeps the dippers in shape for digging the hard, abrasive granite by using Esco teeth with replaceable caps. Esco style 5R5 rock-caps are installed twice a week or every 20 hours. Rand's mechanics fit the caps into the teeth with a rubber wedge and grommet. It only takes 15 minutes to attach a complete set of new caps.

Assisting with the rock work are two Cat D8 dozers and an International TD-24. Their duties include shaping up the loading banks, sorting out oversize pieces, cleaning up spillage, and spreading out the rock fill in embankment areas. A Caterpillar No. 12 motor grader maintains haul roads. Compaction of material in fills is done by pneumatic-powered Vibro-Plus Tampers.

(Left) Rock is cleared off side-drainage ditch along roadway by a 1½-yd. Northwest model 6 hoe. Rock wagon for short hauls is a 21-yd. Athey PR-21. (Right) Cat D8 clears rock off road after a blast. Largest shots use about 6,000 pounds of explosive.

Rig for secondary drilling is a Joy Junior Air Track which drills 3-in. blast holes horizontally or vertically. A 600-cfm Chicago Pneumatic compresser supplies power.

Hauling units include two 9-yd. Autocars; seven International 12-yd. 10-wheelers; and four light trucks.

Drilling and blasting on the Maney contract has been sublet to Rowe Contracting Co., Malden, Mass., which specializes in highway and quarry drilling on a contract basis. Primary drilling units are three Joy Challenger T-500's which drill 4-in. diameter holes. The rotaries are mounted on Case TerraTrac tractors and are powered by Chicago-Pneumatic 600-cfm air compressors. Holes are drilled three feet subgrade with maximum drilling depth being about 48 feet. A typical day's hole production is 18 holes of 20 to 25-ft. depth.

Secondary drilling is handled by a 3-in. Joy Junior Air Track which is a self-propelled unit capable of drilling vertical or horizontal holes. It also is powered by a Chicago Pneumatic 600 compressor.

Both types of drills use Timken carbide-tipped X-bits of 3 and 4-in. diameter. Bit life is extremely variable ranging between 350 to 720 feet of hole, depending upon rock hardness.

The Joy Junior drill averages about 200 feet per day in granite. In fact, according to Ed Forest, blasting foreman for Rowe Contracting, the drill once put down a 1-ft. hole in hard rock in 30 seconds when it was brand new. Average hourly production is 20 to 30 feet.

Gelatin dynamite is a necessity for blasting because the fissured rock is usually full of water. Hercules 60% gel in 2 x 16-in. and 3 x 16-in. sticks overcomes the water problem. Bags of bulk ammonium nitrate powder are then poured into the holes. Detonation is by safety fuse with Hercules instant through No. 12 delays. About 6,000 pounds of explosives are used for the more sizable shots.

Design of the roadway calls for twin 36-ft. roadways separated by a 50-ft. median. There are two 12-ft. travel lanes in each direction and a 10-ft. paved emergency stopping lane. Travel widths will be paved with bituminous concrete. Stopping lanes will be BMA-type (bituminous-macadam-asphalt).

The width of the dividing median varies to as much as 310 feet because of drainage conditions. About 16,000 yards of channel excavation are called for in the contract to straighten out and deepen Old Swamp River which wanders through the right-of-way for about 3,000 feet.

Two large box culverts and a 72-in. concrete drainage pipe carry the river under the highway. A large amount of medium diameter drainage pipe will be needed. This includes 8,000 feet of concrete pipe from 12 to 36-in. diameter; 1,700 feet of asphalt-coated corrugated metal pipe from 12 to 36-in.; and 5,000 feet of clay pipe.

Trench and channel excavation is being handled by two Northwest model 6 backhoes carrying 1½-yd. dippers and a Warner & Swasey hydraulic Gradall with blade attachment. These units are also digging about 6,000 yards of structural excavation.

Structure-wise the contract is simple. Two bridges will be built to handle traf-

Lunch-time gathering includes (bottom row left to right): Bruce Mathison, Tri-City Concrete Co.; Mike Moscaritolo, concrete foreman for Maney; and Louis Drago, state inspector. Top row: Joe Carpinteri, field engineer for Maney; Jim MacDonald, assistant state resident engineer; George Thomas, owner of Tri-City Concrete Co.; Bill Hagan, general superintendent; and Hubert Scott, state resident engineer.

Inspection of job by top officials coincided with *Excavating Engineer's* visit. They are George W. Sands (left) purchasing agent, and Joseph T. Cunning, president.

fic of intersecting local roads. The expressway will be carried over one and under another. The overpass is 60 feet long and the underpass 250 feet. The bridge design calls for steel girders placed on reinforced concrete piers founded on rock. Decks will be 8-in. reinforced concrete.

Base for the twin roadways will consist of a 12-in. gravel foundation for crushed stone; a 4½-in. layer of the stone; a 2½-in. bituminous concrete surface course; and a tack coat sealer.

Paving quantities are as follows: gravel sub-base material, 50,200 yards; crushed stone course 23,800 tons; and bituminous concrete 10,100 tons.

Gravel borrow is being obtained from a commercial pit adjacent to the right-of-way, which Maney has leased. Loading is handled by shovels between rock cut assignments.

Prior to coming on the present job, Maney's two 51-B's were assigned to a traffic interchange contract in Revere north of Boston. Working as cranes, the 51-B's drove 80 to 90-ft. piles for the rotary interchange north of the Mystic River bridge and later poured concrete for the structure. The Revere interchange is the largest rotary in New England and one of the largest in the United States.

Equipped with crane booms, the two machines also drove piling on a grade elimination job in Winchester for the Boston & Maine railroad. The $4 million contract super-elevated the B&M tracks on structures and embankments.

At the present time C. J. Maney has going other large projects for the Boston Metropolitan District Commission in Malden, Mass. The jobs are a $12 million branch sewer and a $12 million water tunnel undertaken in joint venture with Morrison-Knudsen Co., Inc., Boise, Idaho, and Peter Kiewit Sons' Co. Omaha, Neb. Diameters of the huge pipes are 10 and 11½ feet. They are

Continued on page 60

The Three Steamshovels

An interesting and perhaps not too well known sidelight of the history of the C. J. Maney Co. is the fact that the late Joseph Maney who headed the firm until his death in 1954, was once a part-owner of the Boston Braves National League baseball club. The Braves moved out of Boston in 1953 to Milwaukee, Wis., where they have become one of the most successful teams in the major leagues.

The Braves in the early '50's were an enterprise of a triumvirate of highly successful Boston excavating contractors. Lou Perini of B. Perini & Sons, as that firm was then known, headed the group. (B. Perini & Sons is now the Perini Corp., Framingham, Mass.) Joseph Maney was the second member and G. L. Rugo of G. L. Rugo & Sons, Inc., was the third.

Stories carried on the sports pages of newspapers frequently referred to the club owners as "the three steamshovels." Perini took over both the Maney and Rugo interests prior to the team's shift west from Boston.

Brand new 15-yd. Euclid dumps material taken out of a rock cut. Maney put big chunks of granite like these at the bottom of deep fills for covering with finer materials.

Business Is What You Make It

Denver excavating contractor keeps busy despite local slack in home construction.

by Ray Day

Kuehn's newest machine is this Bucyrus-Erie 11-B Transit Hoe whose digging capacity with 30-in. dipper is ⅜-yd. Here the hoe trenches for water lines at Littleton, Colo.

DEPRESSION? Recession? Slack business period? They don't mean a thing to the man who has the will to succeed.

Take Contractor Larry Kuehn, for instance. He's a small excavating contractor, working a 30-mile radius around Denver, Colo. He specializes in the typical things excavating contractors usually get into on a small scale—basements; sewer lines; digging around housing developments. Not too many cubic yards in one place on jobs like that . . . fast moves from place to place are the rule rather than the exception. And Kuehn had the bad fortune—or the good fortune, depending on the way you look at it—to start expanding just about the time the business recession was in the making.

What's been its effect? Well, it's sharpened the competition so that any time Kuehn can't keep a customer happy there are always other excavating contractors ready and willing to step in and take his place. "But that's good," says Kuehn. "It tends to make a man much more efficient."

To prove his point, Kuehn has moved right out business-wise, mechanizing his small spread. When he started business three years ago he bought a ¾-yd. crawler-mounted Bucyrus-Erie 22-B rigged as a hoe. He's kept that machine so busy that a new addition recently was made—a Bucyrus-Erie 11-B truck-mounted ⅜-yd. hoe. And, recession or

The truck-mounted unit crosses sidewalk and curb without the necessity of covering the concrete with timbers to prevent cracking.

not, he's looking forward to the time in the near future when his operations will justify a much bigger machine. He'll make it, too. He also owns a new Cat D6, dozer-equipped, and a Wooldridge scraper.

Kuehn is a self-effacing, modest guy, and he'd be about the last man ever to admit that he had any trade secrets over and above any of his competitors. When *Excavating Engineer* visited his spread to ask him what his customers liked about his service particularly, he hedged a little and modestly changed the subject back around to the new 11-B he'd just purchased. But one of the supervisors on the big housing project where Kuehn was digging wasn't so bashful. In fact, Kuehn epitomizes to him what any small businessman should be—and too infrequently is.

"It's probably easy to generalize and say a fellow's efficient," this supervisor explained, "but Kuehn really is. First of all when you give him a job to do at a certain location at eight o'clock on a certain morning, Kuehn will be there with his rig and you can depend on it. Not only that, but you can bank on the fact that he'll have a digging dipper that will dig without getting stuck; teeth points that are really sharp, or maybe special points over and above what you normally find on dipper teeth. His rig will be in good condition. On his new machine the other day I saw him changing the position of the dipper-pull brackets to get bigger loads faster. Those little things add up.

Contractor Larry Kuehn poses beside 11-B dipper. Teeth have slim, tapering points for digging gumbo and hardpan.

Always Punctual

"Right here on our spread, just to give you an idea how efficient Kuehn really is, we have a hoe of our own. We could hire an operator and put it to work much more often than we do, but a lot of the time that machine sets idle while we pay Kuehn for himself and his machine. Why? Simply because it's better business for us. We get more dirt dug, we get it dug without a lot of supervision, and we get it done when its supposed to dovetail into the rest of these building operations. That's what I mean by efficiency. And when you find a man who will give you that when he and his machine are working by the hour, I say it's rare."

Basements are a Kuehn specialty. The square corners and smooth side walls of this job show good operating control. A 160-yd. basement takes about four hours to dig.

Running true to form, both of Kuehn's machines were busy when the pictures for this article were made. The 22-B crawler had just been moved by a rented lowboy trailer to a large housing project near Aurora, Colo., where a number of large basements had to be dug. The 22-B has proved to be a good machine for such jobs, frequently completing a 160-cu. yd. basement excavation in about four hours. And that includes careful finish work along the walls and sides.

The new 11-B truck-mounted hoe also was hard at work this time on a 1,200-unit housing project being built on the Broadway Estates near Littleton, Colo. The machine is being used here for excavating sewer and water lines, basements, and other miscellaneous digging. In fact, that was what the machine was purchased for, because it combines good capacity digging with high mobility. Between jobs, the truck-mounted machine will move up to 40 mph safely and comfortably. Because most of Kuehn's digging is 2½-ft. work, he has ordered a ⅜-yd. 30-in. dipper, but while he waited for the delivery of that wider unit, the machine dug with a conventional 24-in. dipper.

For the most part, excavation dug by the truck-mounted 11-B is cast to one side, and then pulled back in as backfill after the utility lines have been installed. Kuehn has even rigged up a backfilling blade which attaches to the dipper for doing this work. The machine has been used for digging trenches up to 15 feet deep in very hard material. In fact, the materials which Kuehn handles run a complete range from soft, sandy dirt to cemented hardpan and gravel and boulders.

Kuehn's small six-man average crew includes a full-time mechanic-welder

Continued on page 60

News about Allis-Chalmers construction machinery . . .

Tractor power helps build Navajo Dam...40 stories high

Morrison-Knudsen Co., Inc. is sponsoring contractor on the Navajo Dam job in a joint venture with Henry J. Kaiser Co. and F & S Contracting Co.

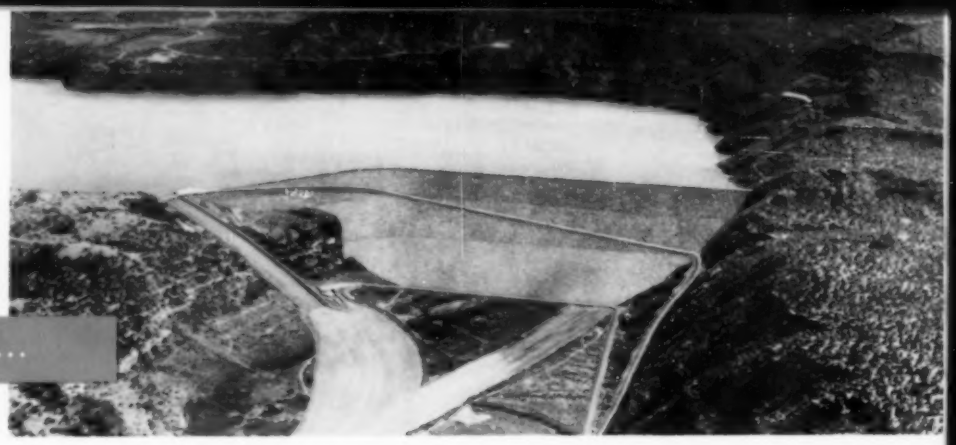
Right now, the dam you see here exists only in the minds of its builders. Spanning a sun-baked canyon in New Mexico, it will create a lake 37 miles long . . . enough water to irrigate many thousands of thirsty acres. But towering Navajo Dam, one of the world's largest earth-fill structures, will take four more years to complete. Sponsoring contractor is world-famous Morrison-Knudsen . . . already moving the first of 26 million yards of dirt and rock that will test tractor performance and dependability as severely as any job can. M-K's choice — big Allis-Chalmers crawlers with turbocharged diesel power, hydraulic torque converter drive, and the toughest track ever made. Allis-Chalmers, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Construction Machinery Division • Engine-Material Handling Division • Farm Equipment Division • General Products Division • Industrial Equipment Division • Nuclear Power Division • Power Equipment Division • Allis-Chalmers International

POWER **FOR A GROWING WORLD**

OVER



How it will look—The finished dam will be 3800 feet wide, 3200 feet thick at its base . . . and will create the biggest body of water in New Mexico.

picture report.....

Allis-Chalmers big HD-21's get Navajo Dam under way

24-foot-wide dozing team—Torque converter HD-21's match power and speed precisely, as they work together to push huge mounds of dirt and rock over the cliff to prepare for construction of a spillway.

No worries about river work—Positive-seal protection of vital track parts lets the HD-21's doze rock from the river bottom to form approaches for a temporary bridge without fear of lubricant loss or track damage.

Heavy-duty power for heavy-duty haul roads—Big Allis-Chalmers Forty Five motor graders fit the Navajo job to a "T." Clean, uncluttered design lets operator see both ends of the moldboard easily as he cuts a roadside ditch.

Four plus yards at a crack—This Allis-Chalmers HD-21G, biggest tractor shovel available anywhere, is helping to load about 40,000 yards of rock and dirt to clear the way for construction of a diversion tunnel.

See for yourself why Allis-Chalmers equipment was chosen for the Navajo Dam job. Your Allis-Chalmers dealer will demonstrate machines to fit your requirements . . . on your job—no obligation. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin

ALLIS-CHALMERS ***POWER*** **FOR A GROWING WORLD**

◁ OVER

MS-1317

Litho in U.S.A.

Rock For A Railroad

THE telephone rings and a congenial, easy going man in his early 40's reaches for the receiver. He pencils a few figures on a nearby pad of paper and the conversation ends.

"That order will be shipped out tomorrow. We've a flexible operation and can consequently give the railroad fast service. They call one day and usually get delivery the next."

These are words of Dave Slee, superintendent of a tri-level granite quarry and rock crushing plant at Granite Falls, Minn. He works for the Green Co., general contractor with offices in Granite Falls and Spokane, Wash., whose main business is producing crushed rock for the Great Northern Railway. The railroad serves an area reaching from Chicago to the Pacific Coast, extends into Oregon and northern California and branches into parts of Canada.

A 2½-yd. 54-B loads rock into 15-yd. Euclid end-dump at Green Co. quarry in Granite Falls, Minn. Machine bails an average 2,800 tons per eight-hour shift.

Four Plants

The Green firm became big in the rock crushing business 10 years ago when it began producing crushed rock products for the Great Northern, which had initiated a long-range program to revamp its thousands of miles of main and trunk lines. In fact, from plants at Granite Falls, Spokane, Essex, Mont., and Merrill, Ore., the Green Co. meets all the crushed rock requirements of the railroad.

All Green plants are established on the same pattern and all produce the same product. The work season varies at each, however, because of weather conditions. The Essex plant, for example, is situated near the top of the Continental Divide. Spring thaws and early fall snows limit this operation from the middle of May to the middle of September. The Merrill quarry, on the other hand, is worked during winter months only. Personnel and rolling equipment at Essex during the summer are shipped to Merrill for the winter operation. At Granite Falls, the season runs from April through October.

Well-run Minnesota quarry is dependable source of ballast for Great Northern.

To get its revamping program started, the Great Northern bought a tract of land just within the city limits of Granite Falls which was rich in an outcropping of hard granite. A 10-year contract for producing crushed rock was then let to competitive bidding. The Green Co. got the job and started operations in July 1949. Green increased its production capacity when the railroad's program gained momentum by leasing land to set up plants at Merrill and Essex. The Spokane works had been long established.

The Granite Falls quarry contains an Archean-type rock of red, pink, gray and blue granite. It is the remains of an active volcanic mountain range that majestically jetted across the Minnesota Valley ages ago, but was ground away during the three successive glacial periods. Evidence of this same type rock occurs in only two other places on the North American continent. There is an out-cropping in Newfoundland and a layer at the bottom of the Grand Canyon of the Colorado River.

Chemically, the granite contains 67% silica. The balance is felspar and quartz, with smaller amounts of mica and other ferro-magnesian minerals. The Granite Falls deposit has been test drilled to 165 feet, and railroad and Green Co. officials agree that the supply is almost unlimited. At its present rate of operation, they say the quarry can be worked another 40 years.

In 10 years of operation at Granite Falls, a nine-acre hole has been opened by Green crews. The quarry is being worked in three lifts. Each lift is recovered at 26 to 28 feet on a 30-ft. drilling depth basis. The face of the quarry at its highest point reaches upward 112 feet.

Spearheading the Green pit operation is a 2½-yd. Bucyrus-Erie 54-B shovel. Powered by a 275-hp Cummins NHRIS

Three Ingersoll-Rand WDX-7 wagon drills handle the drilling chores. They bore 2-in. holes with Timken carbide-insert rock bits.

diesel engine with supercharger and equipped with a Torcon torque converter, the machine bails out an average 2,880 tons of rock per eight-hour shift. The material it digs is so abrasive that teeth on the dipper of the 54-B must be replaced every three days. These are sent back to the firm's maintenance shop where they are built up for re-use with Ford Mangalloy or Stultz-Sickle manganese steel.

Green Co. officials are well pleased with the performance of the 54-B. According to Superintendent Slee, the granite is hard and lays in real tight. "This is the toughest digging a shovel can encounter, and the 54-B has proved equal to the task. Since its purchase in October 1955, downtime on the machine has been remarkably low for the type work it is doing. We've tried other makes of shovels in the pit, but they couldn't take the beating."

Under the skillful hands of veteran operator Gordon Phipps, the 54-B loads into three 15-yd. Euclid end-dumps. A maximum 900-ft. run to the primary crusher eliminates the need for additional hauling units, since the three Eucs are adequate to keep the plant and shovel working constantly. The road from pit to primary crusher is kept in top shape at all times. It is dragged at least once a week and saturated about three times per season with oil from truck and other equipment changes—to keep down dust.

Operator keeps close watch on drilling depth. Each WDX-7 rig drills ten 30-ft. deep holes during an eight-hour shift.

Chunks of rock too big for the primary crusher are broken down in the pit by a 30-year old Lorain model 55 crane. It swings a 4,000-lb. Cape Ann forged steel drop ball.

Drilling at the Granite Falls quarry is done with three Ingersoll-Rand wheel-mounted WDX-7 wagon drills. A fourth WDX-7 is kept as a spare at the drill site in case of a breakdown. The WDX's bore a 2-in. hole on 6½ x 6½-ft. centers with Timken carbide-insert rock bits. Hole depth is 30 feet. Each WDX-

7 bores 10 holes during an eight-hour shift. The Timken bits are sharpened after every 60 feet and will take about 12 sharpenings before they must be discarded. In addition to Brunner & Lay drill steel, the Green Co. is using drill steel manufactured by the Cold Springs Granite Co., Cold Springs, Minn., a large concern with several quarries of its own.

Power for the drills is supplied by a stationary Worthington horizontal duplex direct-drive 18 x 14 feather valve compressor, with 1,000-cfm capacity, that is driven by a 440-volt 175-hp electric motor. Housed in an all aluminum maintenance building located near the crushing plant, the compressor pumps air directly into a receiver storage tank that feeds a 6-in. pipe which runs out to the pit. This pipe is laid above ground so leaks which might develop can be easily discovered and quickly repaired.

Cat D8 tractor, equipped with U-dozer to push big loads, keeps stockpile material built up around gravity flow reclaiming tunnels, which feed car-loading conveyors.

Shoot 260 Holes

Blasting is done an average of once every 10 days. The shots produce about 10,000 yards of rock from some 260 holes. Each hole is filled almost to its collar with 34 pounds of 1½ x 12-in. sticks of Pacific Powder Co. 60% gelatin-type explosive. The blast ratio is ⅝ pound of powder to every yard of rock.

In loading, the first six feet are compacted very tightly by hand tamping with a pole considerably longer than the depth of the hole. This practice prevents a tow from forming at the bottom of the hole when detonation occurs and assures a smooth, level floor from which the shovel can work. The remainder of the dynamite is also tamped but more loosely than the initial six feet. Atlas delayed-action caps are used to set off the blast. These are ignited by a 440-volt electric line.

Explosives are stored in a 16-ft. square all-weather cement block building located well away from the blast area. The blasting caps are kept in a cement block building located some 50 feet from the dynamite store house. Shipments of both explosives and blasting caps are received by rail every three to four weeks.

Fragmentation is so good that no secondary drilling or blasting is necessary. The few chunks too big for the primary crusher are broken down by a 30-year old Lorain model 55 crane that

Here is an overall view of the firm's crushing plant. Finished product is heaped into storage piles by 165-ft. long conveyors.

An extension is used to load cars on second track. It takes four and one-half minutes to load 66 tons of ballast and six and one-half minutes to load 66 tons of rock chips.

has 50 feet of boom and swings a 4,000-lb. Cape Ann forged steel drop ball.

The haul road from pit to primary crusher is up a fairly steep grade which the Eucs must climb in low gear. Once on top, they dump their loads into a 5 x 14-ft. electrically operated Telsmith manganese pad apron feeder, the sides of which have been built up with ½-in. steel plate to hold 40 yards of rock. The Telsmith feeds a 42 x 54-in. standard Type C Birdsboro-Buchanan primary crusher with a capacity of 231 tph. Its jaws are set to a 6-in. discharge opening.

After passing through the primary crusher, the rock drops to a 4 x 8-ft. Jeffrey-Traylor vibrating feeder, which eases the material onto a 36-in. wide, 120-ft. long conveyor belt. The conveyor belt carries the rock to a Nordberg vibrating grizzly with 4-in. opening. Oversize material is fed to a 16-B Telsmith gyratory crusher. Here, the rock is reduced to 3½-in. size, then drops onto another 36-in. wide belt, 160 feet long, which leads to a large surge pile. Material passing the 4-in. opening of the grizzly also falls onto the surge pile conveyor belt, just behind the feeder of the Telsmith crusher.

According to Superintendent Slee, "maintaining a surge pile is the key to any rock crushing operation. It gives us flexibility because if a breakdown occurs in the pit or at the plant, we can still keep going on one end. Were we to eliminate the surge pile, the entire operation would come to a standstill if work stopped at either place."

A reclaiming tunnel lies beneath the surge pile that funnels the rock into a 42-in. by 10-ft. Stephens-Adamson feeder. The feeder eases the material onto a 36-in. wide, 165-ft. long conveyor belt which terminates over two 5 x 12-ft. double-deck Stephens-Adamson vibrating screens, mounted side by side. The top decks of the vibrating screens have 2-in. openings and the lower decks ¾-in. openings. Anything retained on the ¾-in. screens—2-in. to ¾-in. material—is main ballast. These screenings are dropped onto a 24-in. wide 13-ft. long cross conveyor that discharges onto a 224-ft. long stockpiling conveyor.

This is Dave Slee, who is superintendent of The Green Company's tri-level quarry and rock crushing plant in Granite Falls.

Overs on the top decks of the Stephens-Adamson vibrating screens drop into a box feeding a 4-ft. Nordberg Symons cone crusher, set to reduce the material to 2½-in. size. The rock then falls onto a 30-in. belt and is carried to a return box which empties onto the belt coming from the surge pile.

Material dropping through the lower or ¾-in. decks of the Stephens-Adamson vibrating screens goes down a chute to a 24-in. wide, 60-ft. long conveyor belt which discharges onto a Cedarapids vibrating screen with ¼-in. openings. Rock retained—¾ to ¼-in. size—is dropped onto a 24-in. wide 165-ft. long stockpiling conveyor. Throughs, which consist of material from ¼-in. to dust, fall into a hopper and are hauled from there by a 6-yd. model W60 Koehring rubber-tired Dumptor, which either loads directly into railroad cars from a specially built ramp or stockpiles the material for future shipment.

Use Ballast

The Great Northern's biggest demand is for ballast, the 2 to ¾-in. material. It is used as a fill between ties on the railroad's main lines. The crushed rock assures a more firm and level roadbed than dirt fill, provides better drainage, increases tie life and cuts overall maintenance costs. The railroad uses rock chips, ¾ to ¼-in. material, for the same purpose on its branch lines. This secondary ballast is also used around switching facilities and in railroad yards. The fines, ¼-in. material to dust, are used at road crossings and on depot platforms.

Loading railroad cars is a fast and efficient operation at the Granite Falls plant. Beneath each stockpile is a gravity flow feed reclaiming tunnel that has a 30-in. square opening. Built downward from the opening is an angled metal chute that eases material onto 165-ft. long conveyor belts. These conveyors terminate at positions directly over a railroad track laid adjacent to the stockpiles for spotting and loading cars. Cars spotted on an inside track, that nearest the stockpiles, can be loaded by both ballast and rock chip conveyors. Rock chips can also be loaded into cars spotted on a second track. This is done with a chute extension connected to the end of

the rock chip conveyor. When cars are spotted on the inside track, the chute is retracted to the underside of the conveyor; to load cars on the second track, the chute is brought forward and locked in place. A third or outside track is used to spot empty and, in some cases, loaded cars.

A Linn half-track, with 165-hp Cummins HBR diesel engine, is used to spot empty cars under the conveyors. It takes four and one-half minutes to load 66 tons of ballast and six and one-half minutes to load 66 tons of rock chips. The cars are then moved to a tailtrack where they remain until needed by the railroad.

If switching is well timed, the Granite Falls plant can load 75 cars in a nine-hour day; the average is 56. The Great Northern makes pick-ups about three times a week. In periods of particularly great demand, conveyor loading is supplemented by a 2½-yd. Marion diesel model 392 shovel, which is kept as a standby machine.

In addition to crushed rock, the railroad at times needs riprap for right-of-way embankments. About 250 carloads of this are shipped from Granite Falls every year.

Stockpiles are shaped by a Cat D8 tractor equipped with a U-dozer so it can push big loads. The D8 also keeps material built up around the gravity flow feed reclaiming tunnels when car loading takes place, and it is used to doze rock in the pit following a blast. In addition to the D8, a D6 is owned by the Green firm, which cleans up around the plant and under conveyors.

Electricity is supplied by a Northern States Power Co. substation located just outside the city limits of Granite Falls. A 2,300-volt line is strung from there into the quarry's transformer. Power is taken at its full value from the transformer to run the three crusher motors. It is stepped down to 440 volts for the remaining motors and to 110 volts for lighting fixtures and shop machines.

A 6-yd. model W60 Koehring rubber-tired Dumptor stockpiles fines for future shipment. It can also load the material directly into railroad cars from a special ramp.

Keep Costs Down

Dave Slee believes in preventive maintenance, and his program has paid off in results which have kept repair costs way down.

The firm's rolling equipment is serviced twice daily—during noon hour and at the end of each work day. Periodic oil changes are a must under Slee's program, and frequent checks are made of all moving parts to prevent a major breakdown. Tires are serviced regularly, and each piece of equipment is completely overhauled during winter shutdown so they're in top condition come spring.

Every other weekend, concaves on the jaw of the primary crusher are built back to their original shape with Stoody nickel manganese rod. Building up wearing parts on the secondary crushers and shovel dipper is a continuing process. When 4 to 5 inches wear off dipper teeth, they are brought into the shop and conditioned for re-use by welding Mangalloy or Stultz-Sickle manganese steel to the tips.

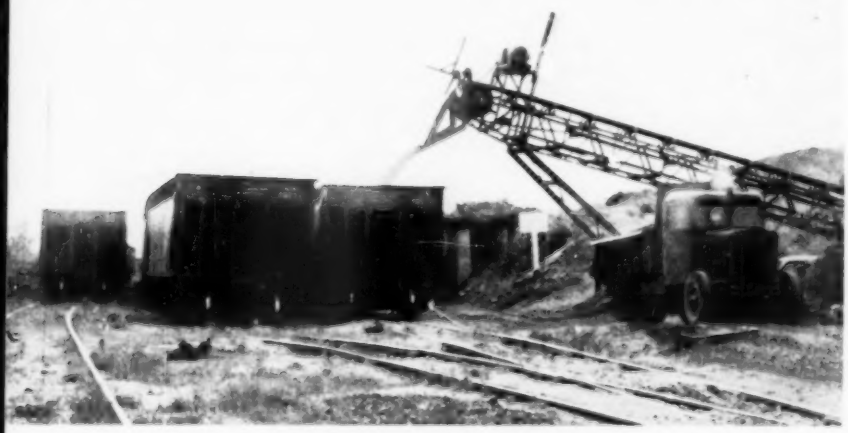
Welding equipment includes two General Electric 400-amp electric welders; a Hobart 300-amp electric welder; and a Lincoln portable arc welder.

All plant equipment—including motors, crushers and conveyors—is completely torn down during winter months and reconditioned.

Key Personnel

In addition to Slee, key personnel at Granite Falls are Gordon Phipps, shovel operator; Arne Frovik, assistant shovel operator; C. R. Swalstad, chief mechanic; Wallace Johnson, drill superintendent; and E. W. Peterson, welder.

The Green Company's quarry operation is a partnership owned by H. F. Green, G. B. Seeback and Len G. Melville.



Linn half-track, with 165-hp Cummins HBR diesel engine, is used to spot empty cars under conveyors. When loaded, cars are moved to siding to await pickup by railroad.

News from the Field

Nominate AGC Officers

James W. Cawdrey, Seattle, Wash., was nominated for president and former Federal Highway Administrator John A. Volpe for vice president of the Associated General Contractors of America at the midyear meeting of the AGC governing and advisory boards in Atlanta, Ga.

Cawdrey, now vice president of the AGC, is a member of the Seattle firm of Cawdrey & Vemo, building contractors. He was nominated to succeed the current president, Fred W. Heldenfels, Jr., of Corpus Christi, Tex. The election will be conducted by mail ballot in December, and the president and vice president for 1959 will be installed in office at the 40th annual convention of the AGC at Miami Beach, Fla., in January.

Volpe, who served on an interim basis as Federal Highway Administrator to launch the long-range highway program approved by Congress in 1956, is head of the John A. Volpe Construction Co., Malden, Mass.

Both Cawdrey and Volpe have long been active in the AGC. Cawdrey has served as president of the Seattle Chapter of the AGC and as chairman of the Building Contractors' division of the national association. He has been in the construction business since 1934.

Volpe also entered the construction business in 1934, as a young contractor of immigrant parentage, with $300 capital, and he has built his firm into an organization with offices in Washington, D. C., and Rome, Italy, as well as its headquarters in Massachusetts. He served as commissioner of public works for Massachusetts before becoming Federal Highway Administrator in 1956. He retired from the position in early 1957 to re-enter his own business.

B-E Names Sales Managers

Lewis C. Black has been appointed manager of domestic sales by Bucyrus-Erie Co., South Milwaukee, Wis. He had been manager of sales for large excavators since January 1958, and had previously served as assistant general sales manager of large machines and blast hole drills.

Replacing Black as manager of sales for large excavators is Howard Freyensee. He formerly was sales development manager for commercial cranes and excavators.

Black was assigned to the firm's home office in July 1956, after serving as assistant eastern district manager since October 1955.

He joined Bucyrus-Erie in 1935, after graduating from Lehigh University with a degree in mining engineering.

Freyensee is a graduate of DePauw University, Greencastle, Ind. He joined the firm in 1946 and has served as sales representative attached to the Chicago (Ill.) and Atlanta (Ga.) offices.

Powder crew loads bag of ammonium nitrate into Jetloder machine. A gallon of diesel fuel oil is added simultaneously, with the Jetloder handling the mixing.

H. Freyensee

L. C. Black

Machine Loads Blast Holes

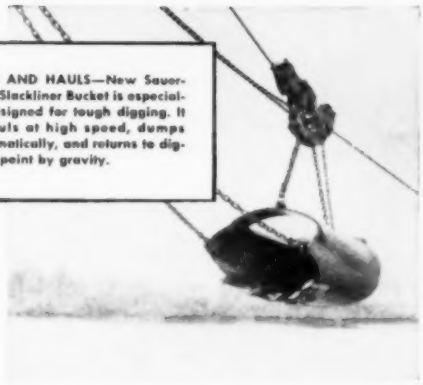
To mechanize the loading of fertilizer grade ammonium nitrate, Atlas Powder Co., Wilmington, Del., has developed a new blow-loading machine which uses compressed air to blow the blasting agent, and also sand stemming, into blast holes. Atlas has named the device the Jetloder.

Working tests have demonstrated that the machine, as now developed, can blow 2½ pounds per second of ammonium nitrate and diesel oil mixture into a 50 to 60-ft. horizontal blast hole. Four 80-lb. bags were loaded into one hole in two minutes. Hand loading of the same material in the conventional

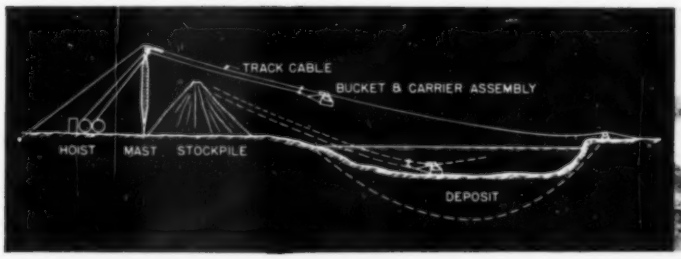
Continued on page 42

FROM PIT TO STOCKPILE...

Dig and Haul at Lowest Cost with a Sauerman Slackline



DIGS AND HAULS—New Sauerman Slackliner Bucket is especially designed for tough digging. It inhauls at high speed, dumps automatically, and returns to digging point by gravity.



STOCKPILES MATERIAL—Regardless of long hauls, the Slackline builds a large surge pile to allow charging the plant at any desired rate. Plenty of material is in ready reserve for seasonal or unexpected increases in schedule.

Operating costs as low as 8¢ per yd. for labor, power and maintenance are reported by Slackline Cableway owners when digging free-caving material at average depth and haul distances.

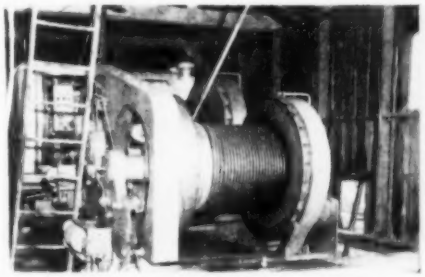
These low costs are achieved by using just one machine—the new Sauerman Slackline Cableway. Multiple equipment is not needed to supply your required tonnage. For example, on an average haul and digging depth, a single medium size machine will charge a 200 tph. plant.

The high Slackline mast permits building a large pile which can supply plant demands through a plate feeder and tunnel conveyor, front-end loader or clamshell. The new Sauerman torque converter diesel-hoist automatically matches power to load demands and is designed for continuous duty. Fluid drive cushions out shock loads to reduce fuel and maintenance costs, extend cable life.

Increasing land values and depleting resources make it necessary to get all the material out of your deposit. You can do this with a Sauerman Slackline. The machine will dig from ground level to deep under water and keep your plant running additional years at the lowest possible operating cost. Several pits are now operating Slacklines on 1000-ft. spans with average hauls of 500 to 700 ft. and from 100-ft. depths.

Write or call, giving your tonnage requirements, depth and length of deposit—if available. We will promptly supply more information on Slackline Cableways, and show you how to *save with a Sauerman.*

CONTROL IS REMOTE, EFFICIENT AND SAFE—Control station can be conveniently located at any strategic point in plant area. Operator can watch entire operation. Fatigue is minimized and personal danger eliminated.



TORQUE CONVERTER INCREASES PRODUCTION, CUTS MAINTENANCE—Now available, the new Sauerman Torque Converter Hoist automatically matches power to load, provides a smooth and steady flow of material, reduces fuel, maintenance and cable costs.

SAUERMAN BROS., INC. 622 SO. 28th AVE. BELLWOOD, ILL.

LInden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent Scrapers • Slackline and Toutline Cableways • Durolite Blocks

BONDED BUY

"WHAT'S 'BONDED BUY'?"

When you make a "Bonded Buy" purchase from your Caterpillar Dealer on any used Cat-built machine, he gives you a Guarantee Bond of up to $10,000.

And you can be sure that the used equipment you buy is in the best possible condition at the lowest reasonable price.

"ANYBODY ELSE OFFER 'BONDED BUY'?"

No—just your Caterpillar Dealer.

"DOES HE OFFER ANY OTHER KIND OF PROTECTION ON USED EQUIPMENT?"

"Certified Buy." This covers any make machine and includes his written guarantee. And "Buy and Try"—which carries a written money-back agreement.

"WHAT DOES ALL THIS MEAN TO ME?"

That you can be *sure* of a *safe buy* when you buy used equipment from your Caterpillar Dealer. Call him today.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BEST BUY IN NEW AND USED EQUIPMENT

News . . .

Continued from page 40

way by a three-man crew with jointed tamping poles requires 30 minutes.

The only basic equipment required for use with the Jetloder includes a compressor to provide air at 45 psi; a truck or other device to move the compressor and blow-loading machine and supplies; a sufficient amount of 1½-in. (I. D.) plastic pipe to reach from the machine to the back of the blast holes.

This blow-loading machine is unique in that it has no moving parts except the closing device and the valve which admits air.

In one of a series of recent tests at a large Ohio stripping operation, a crew of three men primed, loaded and stemmed five holes, varying in depth from 75 feet to 90 feet, in one hour and 30 minutes.

Each hole was primed with 80 pounds of Atlas Gelodyn #1 in 2-in. diameter Twistite cartridges screwed together to form a continuous primer 40 feet long. Detonating fuse was connected to the outer end of the primer and the primer column was inserted to the back of the hole.

The plastic pipe of the Jetloder was placed in turn in each hole, and a total of 2,320 pounds of ammonium nitrate was mixed with oil and blown into the holes. The bags of ammonium nitrate were emptied directly into the machine. One gallon of diesel oil was poured into the machine simultaneously with each 80-lb. bag of ammonium nitrate, with the Jetloder doing the mixing.

Ten to 15 feet of sand were then blown into each hole for stemming. The holes were detonated and excellent fragmentation resulted.

This and other tests show that the blow-loading machine offers great promise as a method of automating the charging of horizontal high-wall blast holes. While the time and labor saved will vary naturally with different operating conditions, considerable savings may be expected. Experiments are also being conducted to determine the economy of the Jetloder in vertical holes.

Tests show that the blow-loading method achieves greater density, which can generally be expected to improve the breakage in ammonium nitrate shooting.

The most recent experiments seem to indicate that a 1¼-in. diameter continuous primer of special high-velocity, high-strength gelatin can be used, thereby further reducing costs and improving results.

Ebasco Aids Iran

A far reaching and thorough program of modernization and economic development for a 50,000 square mile area of Kerman province in south central Iran was launched last month by Kerman Development Corp., New York, N. Y., a company jointly formed for that pur-

Continued on page 44

"Joe, will you turn down the pressure a bit on the paint sprayer?"

Another Caterpillar Improvement That Lowers Maintenance Time and Costs

—NEW DRY-TYPE AIR CLEANERS FOR THE DW20 AND DW21!

The engine's worst enemy, air-borne dust really takes a licking from the new Caterpillar dry-type air cleaner, now standard equipment on DW20 and DW21 Tractors. Another of many earthmover features developed under Caterpillar leadership, this new cleaner not only slashes maintenance time and costs, but also increases engine efficiency and life. For example:

MORE EFFICIENT! New dry-type air cleaner removes 99.8% of all dirt in intake air, where oil-bath cleaners normally remove only 95 to 98%. In addition, effectiveness of the new dry-type unit is *constant* at any engine RPM, is not adversely affected by temperature changes or oil that needs changing.

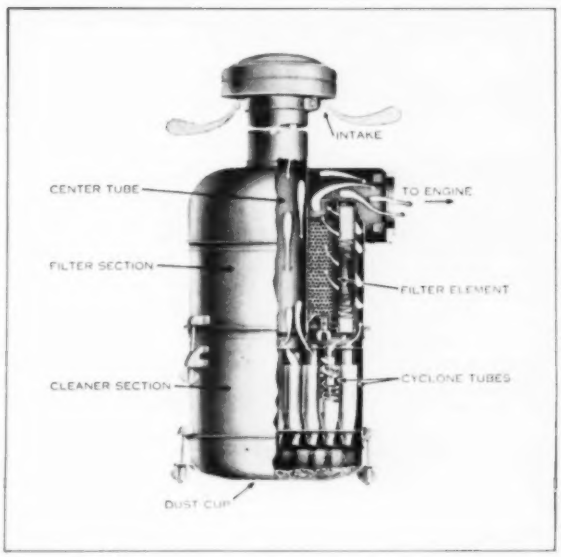
This constant efficiency means that the most serious thing that can happen is reduction of air capacity—and temporary loss of engine power. But dirt *does not* get through into the engine. Excessive black smoke is an immediate visual reminder that HP is decreasing and that the cleaner needs servicing.

EASIER TO SERVICE! Both dry-type and oil-type cleaners should be serviced at intervals depending on dust conditions. But with the dry-type all that's required is removing the pan and emptying the dry material—a matter of 5 minutes, as against 20 minutes it usually takes to service the often messy oil-type. There's 15 minutes *more* for production at each service period!

MORE ECONOMICAL! The paper filter element can be cleaned easily and reused several times making replacement costs lower than the sum normally spent for oil to service the oil-type. Servicing is also faster, reducing labor costs.

Here's proof again that Caterpillar is the leader in *lowering* earthmoving costs. For complete information on the new dry-type air cleaner in Cat DW20 and DW21 Tractors, see your Caterpillar Dealer!

FIND YOUR CATERPILLAR DEALER IN THE YELLOW PAGES



HOW THE DRY-TYPE AIR CLEANER WORKS

Operation of this moisture-proof unit is simple. Air enters it through the stack cap and passes through the center tube. The cap has a 14 x 14 mesh which removes most large, troublesome particles. From the center tube the air passes through the cyclone tubes.

These cyclone tubes swirl the air causing the heavier particles of dirt to drop out by centrifugal action through the funnel section into the dust cup. The relatively clean air then passes to the resin impregnated paper filter. This removes the remainder of the dirt. After passing through it, the air moves to the intake manifold of the engine.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

NEW DRY-TYPE AIR CLEANERS FOR GREATER EFFICIENCY AND ECONOMY!

Load-Rated* DOES THE JOB!

Setting 108" Steel Pipe With Crosby-Laughlin Load-Rated Shackles

Crosby-Laughlin* LOAD RATED Shackles are demanded on jobs where safety is essential! "Takes the guesswork out of buying fittings" say users of the LOAD-RATED Line. Quality steel is drop forged—heat treated for toughness. *Order capacity* for the job—*see* guaranteed capacity stamped on LOAD-RATED Fittings! Safety is no accident when you order from the *world's most complete line* of drop forged fittings for wire rope and chain. Sold by construction, industrial and mill supply distributors. Ask for free catalog.
*Trademark

CROSBY-LAUGHLIN *Division*
AMERICAN HOIST & DERRICK COMPANY
FT. WAYNE, INDIANA

News . . .

Continued from page 42

pose by Electric Bond and Share Co. and Allen & Co., New York investment bankers.

The program for the area, comparable in size to New York state, will cover exhaustive studies of the region's resources and potentials with an eye to expanding its economy through improved and modernized facilities and the development of industry, commerce and agriculture. The program will include further development of mineral resources, the improvement and expansion of electric power, communication and transportation facilities, development of additional water resources and the expansion of agriculture and industry.

Under terms of a recent agreement between Iran's Plan Organization and the Kerman Development Corp., technical and management skills for the project will be provided by Ebasco Services Inc., New York engineering, construction and business consulting firm, and financial services will be furnished by Allen & Co.

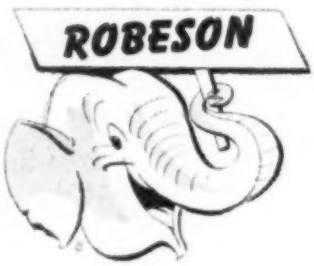
Initial work is expected to get underway with the arrival in Tehran this month of O. P. Young, president of the development firm, and his staff. An office will be established there and arrangements will be made for housing and other facilities for the field staff in Kerman, a city of 52,000.

The area to be studied is rich in natural resources such as coal, lead, copper, iron, bauxite and chrome. One of Ebasco's primary responsibilities will

be to advise Plan Organization of ways to expedite the development of these resources.

The program will begin with a preliminary reconnaissance of the territory. Reports will then be submitted to the Plan Organization recommending those projects which will receive detailed study. The scope of these studies will include the evaluation of present and future demand and supply patterns for the resources of the region, recommendations for the general type and size of facilities to be installed, estimates of investments and operating costs of the proposed projects, and recommendations for the type of administrative and operating organization.

For each project which is approved and authorized by the Plan Organization, Kerman Development Corp. will direct and supervise engineering, design and construction.



Why not learn TODAY how these, and other Robeson Products can save YOU time, money and equipment by writing

YEAR-'ROUND PROTECTION FOR ALL TRUCKS AND HEAVY EQUIPMENT

ROBESON RUST-INHIBITOR PRIMER PAINT AND HEAVY-DUTY ENAMEL

The PRIMER gives excellent rust-resistance, is fast-drying (30-40 min.) and forms an excellent surface for applying the enamel. It is abrasion-resistant. Can also be used on Marine and floating equipment.

The ENAMEL is grease and oil resistant, gives high coverage and has excellent color retention. Can be applied with brush or spray gun. 12 high gloss colors. Only one primer and one enamel coat usually needed.

TO PROTECT TARPS from ice and make them water, weather and mildew resistant, treat with Robeson PRESERVO.

ROBESON PRESERVO CO. — 161 MERCHANT ST. — PORT HURON, MICH.
Quality Products For Over 60 Years

EUCLID S-7 VERSATILITY PAYS OFF ON SCATTERED JOBS

Henry Miesz Excavating Co., Inc. of Cleveland, Ohio, had crawlers and pans but realized the need for faster, more versatile equipment to efficiently handle their relatively small earthmoving jobs located in the greater Cleveland area. Four Model S-7 Euclid Scrapers were added to their fleet. Since then these units have worked some 2000 hours each on varied dirtmoving contracts.

Tops for Job-hopping

In a recent four month period, the versatility and fast movement from job to job of Miesz's "Eucs" helped complete the following jobs:

Basement excavation and leveling for manufacturing plant and office — then 23 miles to warehouse and equipment yard grading — next, 32 miles to a golf course and 8 miles to another one — then 28 miles to a factory site — 38 miles further to a third golf course — 52 miles back to a shopping center — then 29 miles to a motel site — and 23 miles to a research laboratory site.

Many Advantages

Vice President "Bill" Miesz and Chief Engineer Bob Keidel report many instances where advantages of the S-7 have helped them. Using these handy scrapers for rough excavation of basements saves time. On one job, being able to cross a newly paved street with the "Eucs" saved them about half the cost of making the same haul with trucks. With widely spread jobs and spotty weather in the area, quick mobility of their scrapers enabled them to work the jobs that were dry and to operate more days during their work season.

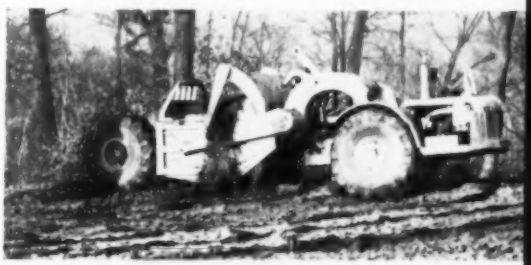
The job-proved versatility of the S-7 is another reason why ***Euclids are your best investment.***

EUCLID Division of General Motors, Cleveland 17, Ohio

S-7 EUCLID FEATURES

- **7 yd. struck capacity**
- **9 yd. heaped**
- **18.00 x 25 or 21.00 x 25 tires**
- **143 h.p.**
- **Torqmatic Drive or 5-speed transmission**
- **25 mph speed**

Mobility of this versatile "Euc" permits better scheduling of earthmoving on different jobs to get maximum production from the machine.



The S-7 maintains steady production despite close quarters and steep grades encountered at building site near main thoroughfare.

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

Equipment You Ought to Know About

Bottom-Dump Trailer

Manufacturer: Athey Products Corp., Department EE, 5631 W. 65th St., Chicago, Ill.

Claims: Athey has introduced the new PW20 bottom-dump trailer which is scheduled to be exhibited at the American Mining Congress Show in San Francisco, Calif., Sept. 22-25. The 40-ton capacity model PW20 is designed for use behind the Caterpillar DW20 tractor.

The PW20 has several advances unique in bottom-dump design. The trailer is made entirely of "T-1" steel. The use of this new steel eliminates deadweight in the trailer and greatly improves the trailer's weight-to-capacity ratio. With an empty weight of only 22,500 pounds and a capacity of 80,000 pounds, the PW20 has almost a four to one ratio of vehicle weight to payload.

Another outstanding feature is the exclusive rear (or third) door design. This rear door opens simultaneously with the bottom doors and permits material to flow smoothly to the rear. In addition to this new door design, the rear axle clearance of the PW20 is a full five feet high to allow the trailer to ride out over—not through—the dumped load.

Steep 18° side plate angles and large 15-ft. 10½-in. x 6-ft. bottom doors reduce funneling action during dumping, allow for handling of oversize material and permit clean, quick dumping of every load.

"Watch him come alive!"

The PW20 is built wide and low with an average side loading height of only 8 feet 9½ inches. Powered by the DW20 tractor, the unit has a top speed of 35.8 mph, a turning diameter of 38 feet 4 inches and interchangeable tires.

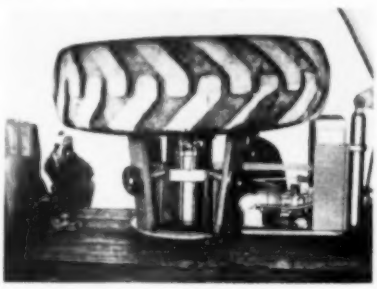
Instant or controlled dumping is another feature of the PW20. An air release opens the doors instantly or under hydraulic pressure for controlled dumps. When closed, the doors are locked with a positive mechanical latch which relieves the hydraulic system of all load.

Tire-Changer

Manufacturer: Salsbury Corp., Department EE, 1161 E. Florence Ave., Los Angeles 1, Calif.

Claims: The improved Salsbury truck and bus Tiremaster is especially designed for demounting off-highway tires.

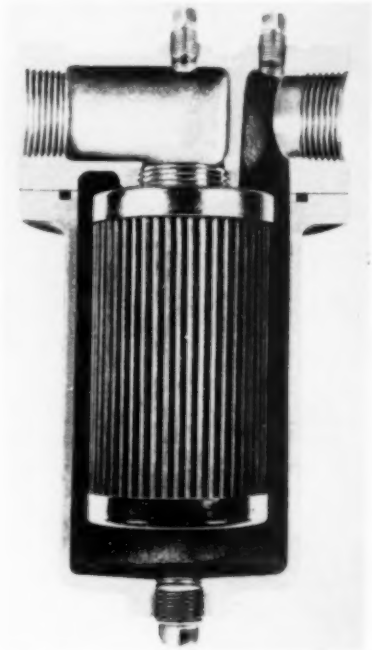
The basic principle of the Tiremaster is to pull the rim downward through the tire. This is accomplished by positioning the wheel on a center shaft where it rests on four rim support blocks. The wheel is locked in place by a hold-down plate. Four contoured bead-breaking shoes are then adjusted to the exact size of the rim. A hydraulic ram, exerting 66,000 pounds pressure, moves downward with the mounted wheel and tire. As the ram descends, the beam-breaking shoes, following the exact contour of the rim, force the tire up and off.



Even the most tightly frozen tire can be demounted in three to five minutes with the Tiremaster, according to the manufacturer. The photo above shows the Tiremaster demounting a 21:00x25 tire from a LeTourneau-Westinghouse Tournapull in 11 minutes.

The Tiremaster handles any tire from 15 to 25-in. rim diameter mounted on any flat base type wheel.

Hydraulic Filter



Manufacturer: Marvel Engineering Co., Department EE, 7227 N. Hamlin Ave., Chicago 45, Ill.

Claims: A newly designed Marvel line-type filter for installation on suction or return line offers efficient filtration of hydraulic oils, fire-resistant fluids, coolants and lubricants.

It is applicable to requirements of operating pressures up to 150 psi at temperatures up to 300° F. It is now being produced in capacity sizes of 10, 20, 30, 50 and 75 gpm with choice of Monel wire cloth mesh sizes from 30 to 100. All units are available with or without by-pass valve.

Ample filtering area provides long periods of productive operation and dependable protection on all hydraulic and other low pressure liquid circulating systems, at minimum maintenance downtime. Provision has been made for installation of either a vacuum or pressure gauge or both.

All units are easily disassembled for thorough cleaning with no throw-away

or replacement parts to buy or carry in stock.

22-Ton Rear Dump

Manufacturer: Easton Car & Construction Co., Department EE, Easton, Pa.

Claims: Maneuverability and smooth, controlled dumping are keynotes of the new Easton TS-1622 rear dump, variable wheel base trailer. The trailer is designed for balanced use with the Euclid model S-12 tractor, and will be known as the S-12 rear dump. All tractor and trailer tires are interchangeable, and the trailer tires, wheels and brake parts are interchangeable with those on the Euclid S-12 scraper. Rated capacity of the trailer is 22 tons, based on material weighing 2,700 pounds per cubic yard.

Ability to maneuver easily through tight turns is a distinctive feature of the S-12 rear dump. When the trailer is in travel position, the power-steered tractor can be cut to a 90° angle, permitting the unit to turn within a width approximately equal to its overall 28-ft. 8-in. length. In dump position, the wheel base is shortened by 5 feet 6 inches, which permits turning within a width of 24 feet.

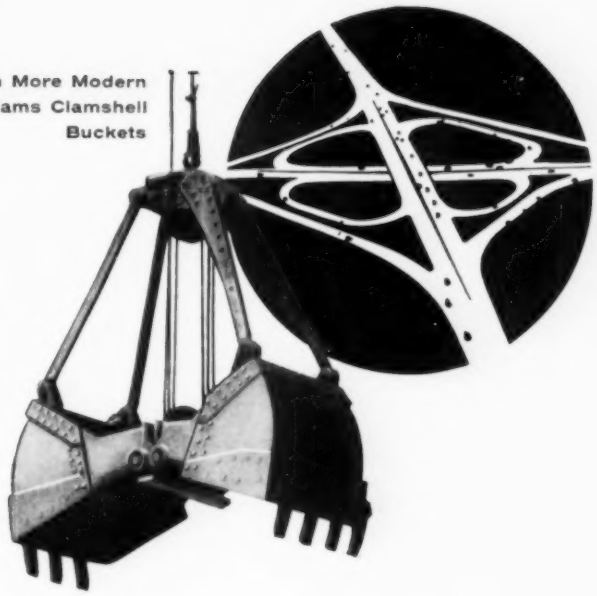
Smooth, controlled dumping is achieved through the use of a newly designed single-stage, double-acting hydraulic hoist, which is supplemented by an integral auxiliary control device developed especially for the new unit. The body hoist provides fast, fully controlled action through the dumping cycle.

An extremely low maintenance factor is claimed for the hoist due to the single-stage design which employs only one inner sleeve and one set of packing glands. Moving and wearing parts have been reduced to a minimum.

The trailer body is sturdily braced on the sides and features a new end construction designed to withstand impact of shovel-loaded rock. High strength, heat-treated alloy steels are used in the body shell, spill-plate and reinforcing

Continued on page 52

No Design More Modern
Williams Clamshell
Buckets



WILLIAMS BUCKETS

built to dig

Full Length Reinforcement
Takes Hard Knocks
Williams Dragline Buckets

Williams Bucket Division, The Wellman Engineering Co., 7010 Central Ave., Cleveland 4, Ohio, U.S.A. Branches, New York, 420 Lexington Ave., Chicago, 520 N. Michigan Ave., Birmingham, 2600 Park Lane Ct. No.

LEADING DISTRIBUTORS

HANDLE BUCYRUS-ERIE and RUSTON-BUCY

ADEN: Luke Thomas & Co. Ltd., Crater.

ALGERIA: See French Union.

ANGOLA: Monteiro Gomes, Ltd., Luanda.

ARGENTINA: General Electric Argentina, S. A., Buenos Aires.

AUSTRALIA: Ruston & Hornsby (Australia) Pty. Ltd., Adelaide, Artarmon, Brisbane, and Clayton.
Harris, Scarfe & Sandovers, Ltd., Perth.

AUSTRIA: Inglomark-Markowitsch & Co., Vienna.

BAHREIN ISLAND: John Birch & Co. Ltd., Manama.

BELGIAN CONGO: Congo Engineering Equipment Co. (CECO) S. C. R. L., Leopoldville.

BELGIUM: Tractor & Equipment Co., S. A. (TRECO) Brussels.

BOLIVIA: International Machinery Co. (Bolivia) S. A., La Paz and Oruro.

BRAZIL: Antonio M. Henriques & Cia., Manaus.
Basto, Carvalho & Cia., Porto Alegre.
Celso Nunes S. A., Parnaiba.
Companhia Nordeste de Automoveis "Cinorte", Sao Luis.
Companhia Propac, Rio de Janeiro.
Companhia Distribuidora Agro-Industrial Ltda., Fortazela.
SIMTRAL Sociedade Importadora de Maquinas, Tractores e Accessorios Ltda., Bahia.
Sociedade Tecnica de Materiais "SOTEMA" S/A, Sao Paulo.

BRITISH GUIANA: Tractor & Motor Co., Georgetown.

BRITISH HONDURAS: R. H. Eyles, Belize.

BRITISH ISLES: Ruston-Bucyrus Ltd., London and Glasgow.
Ruston & Hornsby Ltd., Bristol.

CAMBODIA: Denis Freres d'Indochine, Saigon.

CAMEROUN: See French Union.

CEYLON: Brown & Co. Ltd., Colombo.

CHILE: Grace y Cia (Chile) S. A., DIVISION INTERNATIONAL MACHINERY, Santiago and Antofagasta.

COLOMBIA: General Electric de Colombia S. A., Bogota, Barranquilla, Cali, and Medellin.

COSTA RICA: Alberto L. Arce S. A., San Jose.

CUBA: Armando J. Valdes & Cia., Havana.

CYPRUS: The Cyprus Commercial Co. Ltd., Nicosia.

DENMARK: E. T. Grew A/S, Copenhagen.

DOMINICAN REPUBLIC: La Antillana Comercial e Industrial, C. por A., Ciudad Trujillo.

ECUADOR: M. Ribadeneira Saenz, Quito.

EIRE & NORTHERN IRELAND: Ruston & Hornsby Ltd., Dublin.

EL SALVADOR: Casa B. Sol-Millet, San Salvador.

ERITREA: Paul Ries & Sons Ltd., Asmara.

ETHIOPIA: Paul Ries & Sons (Ethiopia) Ltd., Addis Ababa.

FIJI ISLANDS: Morris Hedstrom Ltd., Suva.

FINLAND: Aktiebolaget Ekstroms Maskinaffar, Helsingfors.

FRENCH UNION

FRANCE: Ets. J. Couthon-Brunner & Marchand (E. C. O. B. E. M.), Paris.

— Their sub-distributors —

ALGERIA: Societe "IMEX", Algiers.

CAMEROUN: Compagnie Francaise de l'Afrique Occidentale (C. O. F. A. O.), Douala.

FRENCH EQUATORIAL AFRICA: C. O. F. A. O., Brazzaville.

FRENCH WEST AFRICA: C. O. F. A. O., Dakar, Senegal; Abidjan, Ivory Coast.

MADAGASCAR: Soc. F. Bonnet & Fils, Tananarive.

GERMANY, Western: W. Strikfeldt & Co., Gummersbach, Rheinland.

GHANA: Holman Bros. Ltd., Takoradi.

GUATEMALA: Comercial MacDonald (Guatemala) S. A., Guatemala City.

HAITI: Compagnie Haitienne de Moteurs, S. A., Port-au-Prince.

HAWAIIAN ISLANDS: Theo. H. Davies & Co., Ltd., Honolulu and Hilo.

INDIA: Greaves Cotton & Co. Ltd., Bombay, Calcutta, Kanpur, Madras, and New Delhi.

INDONESIA: Lindeteves N. V., Amsterdam, Netherlands.

IRAN: Soufar Trading Co. Ltd., Teheran.

IRAQ: John Birch & Co. (Iraq) Ltd., Baghdad, Margil, and Mosul.

ISRAEL: Agricultural Engineering Co. of Israel Ltd., Haifa.

ITALY: M. I. D. E. C., Macchine Minerarie Edili ed Industriali, Milan.

JAMAICA: Robinson & Co. Ltd., Kingston. (Excavators). Caribbean Industrial Equipment, Ltd., Kingston. (Water Well Drills).

JAPAN: Daiichi Bussan Kaisha, Ltd., Tokyo.

JORDAN: Nagib Baki & Sons (Transjordan) Ltd., Amman.

KENYA: Gailey & Roberts Ltd., Nairobi.

KOREA: American Trading Co., Inc., Seoul.

KUWAIT: Mohamed Abdul Rahman Al-Bahar, Kuwait.

LAOS: Denis Freres d'Indochine, Saigon.

LEBANON: Nagib Baki & Sons, Beirut.

LIBERIA: Liberia Tractor & Equipment Co., Monrovia.

LIECHTENSTEIN: Robert Aebi & Co. Ltd., Zurich, Switzerland.

LUXEMBURG: Tractor & Equipment Co., S. A., (TRECO), Brussels, Belgium.

MADAGASCAR: See French Union.

MALAYAN FEDERATION: Harper Gilfillan & Co. Ltd., Kuala Lumpur, Selangor.

MEXICO: Equipos Mecanicos, S. A., Mexico 5, D. F., and Guadalajara.
Equipos Mecanicos del Norte, S. A., Monterrey and Tampico.
Maquinaria General de Chihuahua, S. A., Chihuahua.
Equipos Mecanicos de la Laguna, S. A., Torreon.

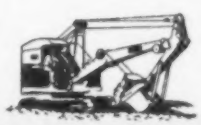
Water Well Drills

Oil Well Drills

Blast Hole Drills

Rotary Drills

Hydrocranes



General Purpose Excavators

Transit Cranes

ALL OVER THE WORLD

RUS EXCAVATORS, CRANES and DRILLS

Tubos y Equipos de California, S. A., La Paz. (EMSA Sub-Distributor, Territory of Baja California).
Crook Company, Los Angeles, California, U. S. A. (Excavators in State of Baja California).
Drilling & Mining Equipment Co., Los Angeles, California, U. S. A. (Water Well Drills in State of Baja California).
Bill Johnson Equipment Co., Phoenix, Arizona, U. S. A. (Water Well Drills in State of Sonora).

MOROCCO: Technical Equipment S. A., Casablanca.

MOZAMBIQUE: Monteiro Gomes, Ltda., Lourenco Marques.

NETH. NEW GUINEA: Lindeteves N. V., Amsterdam, Netherlands.

NETHERLANDS: Wynmalen & Hausmann N. V., Rotterdam.

NETHERLANDS ANTILLES: Prospero Baiz & Co., Curacao, N. W. I.

NEW ZEALAND: John Burns & Co. Ltd., Auckland, Christchurch, Greymouth, and Wellington.

NICARAGUA: Weis-Fricker Co., Managua.

NIGERIA: Holman Bros., Ltd., Apapa.

NORTHERN RHODESIA: Hubert Davies & Co. Ltd., Lusaka and Ndola.

NORWAY: Maskin A/S Pay and Brinck, Oslo.

PAKISTAN: Greaves Cotton & Co. (Pakistan) Ltd., Dacca, Karachi, and Lahore.

PANAMA: Guardia y Cia., S. A., Panama.

PARAGUAY: General Electric Argentina, S. A., Buenos Aires, Argentina.

PERU: International Machinery Co., Lima.

PHILIPPINES: G. A. Machineries Inc., Manila.

PORTUGAL: Monteiro Gomes, Ltda., Lisbon.

PUERTO RICO & VIRGIN ISLANDS: San Miguel & Compania, Inc., San Juan, Puerto Rico.

SAAR: Ets. J. Couthon-Brunner & Marchand (E. C. O. B. E. M.), Paris, France.

SAUDI ARABIA: The Arabian Trading Co., Jeddah.

SINGAPORE: Harper Gilfillan & Co. Ltd., Singapore.

SOUTHERN RHODESIA: Hubert Davies & Co. Ltd., Salisbury, Bulawayo, and Gwelo.

SPAIN: (incl. Colonies): Gumersindo Garcia S. A., Madrid.

SUDAN: Sudan Mercantile Co. (Engineers) Ltd., Khartoum; Sudan Mercantile (Wad Medani) Ltd., Wad Medani; Sudan Mercantile (Port Sudan) Ltd., Port Sudan.

SURINAM: J. F. D. Haenen Co. Ltd., Paramaribo.

SWEDEN: Tornborg & Lundberg A/B, Stockholm.

SWITZERLAND: Robert Aebi & Co. Ltd., Zurich.

SYRIA: Barada Trading & Engineering Co., Damascus.

TAIWAN: Wayfoong & Co., Taipei.

TANGANYIKA: Gailey & Roberts (Tanganyika) Ltd., Dar es Salaam.

THAILAND: Gerson & Sons Ltd., Bangkok. Harper Gilfillan & Co. Ltd., Kuala Lumpur, Selangor.

TRIESTE: M. I. D. E. C., Macchine Minerarie Edili ed Industriali, Milan, Italy.

TRINIDAD: Tractors and Machinery (Trinidad) Ltd., Port of Spain.

TUNISIA: MINE-USINE et COMPTOIR DES MINES Reunis, Tunis.

TURKEY: Said Dormen ve Ort, Istanbul.

UGANDA: Gailey & Roberts (Uganda) Ltd., Kampala.

UNION OF SOUTH AFRICA & SOUTHWEST AFRICA: Hubert Davies & Co., Ltd., Johannesburg, Bloemfontein, Welkom, Durban, East London, Port Elizabeth, and Capetown.

UNITED ARAB REPUBLIC: The Tractor & Engineering Co. S. A. E., Cairo and Alexandria.

URUGUAY: General Electric, S. A., Montevideo.

VENEZUELA: General Electric de Venezuela, S. A. Caracas, Barquisimeto, Maracaibo, and Puerto la Cruz.

VIETNAM: Denis Freres d'Indochine, Saigon.

YUGOSLAVIA: Intercommerce, Belgrade.

Capacities Available

General Purpose Excavators and Cranes — ⅜ to 4 cubic yards (0.28 to 3.1 cubic meters) capacity.

Hydrocranes — 5-ton crane (4.5 metric ton) : ⅜ cubic yard excavator (0.28 cubic meters). 12-ton crane (10.9 metric ton); ½-cubic yard excavator (0.38 cubic meters).

Quarry and Mine Shovels and Draglines — 2½ to 8 cubic yards (2 to 6 cubic meters) capacity.

Stripping Shovels — 2½ to 65 cubic yards (1.9 to 49.7 cubic meters) capacity.

Blast Hole Drills (Cable Tool) for 6, 6⅝, 9, and 12 inch (150, 170, 230, and 305 millimeter) holes.

Blast Hole Drills (Rotary) for 6¾ to 9-in. holes (170 to 230 millimeters); for 9⅞ to 12¼-in. (250 to 310 millimeter) holes.

Walking Draglines — 4 to 36 cubic yards (3.1 to 27.5 cubic meters) capacity.

Railway Cranes — 160 and 250 ton (145 and 227 metric ton) capacity.

Water Well Drills for depths of 500, 1000, and 1500 feet (150, 305, and 455 meters).

Oil Well Drills for depths of 1500, 2500, 3500, and 6000 feet (455, 760, 1070, and 1830 meters).

111Y58C

BUCYRUS ERIE — RUSTON — BUCYRUS

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin, U.S.A.

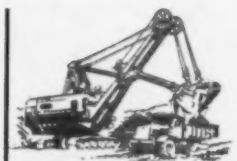
and

RUSTON-BUCYRUS, LIMITED
Lincoln, England

●

World's Largest
Manufacturer of Excavators and Cranes

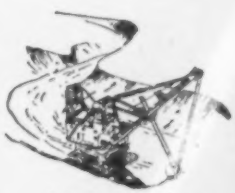
Crawler Cranes


Quarry & Mine Excavators

Railway Cranes

Walking Draglines

Dragline Buckets


Stripping Shovels

NOT in the Contract

There had been severe floods in the valley and the sanitation officer hurried to the scene.

He queried one old couple. "The water supply may be polluted. What measures are you taking here?"

The old chap answered, "First we boil the water. Then we filter it. Then we drink beer."

"Upsy-daisy," coo'd the sweet little old lady, picking up a little boy who had fallen off his tricycle.

"Upsy-daisy, my foot," snapped the modern youngster. "I think I just cracked my sacroiliac!"

A woman often spends years looking for her ideal man. In the meantime she gets married.

He: "I just heard why Solomon had a thousand wives."

She: "Why?"

He: "Well, he figured that when he came home at night at least one couldn't complain of a headache."

It was the immigrant's first visit alone, to the big city. After wandering through a large department store, he approached the floorwalker and in a thick accented voice asked, "Could you tell me plizz, mister, where is the rest room?"

The floorwalker stiffly replied, "Escalator, sir."

"Esk you later?" shouted the man impatiently, "I gotta go now!"

Old gal: "Little boy, throw that cigarette away immediately!"

Little boy: "Lady, are you in the habit of speaking to strange men on the street?"

A Texan encountered a fellow resident on the street of a booming oil and gas town. "Hear you bought another Cadillac."

"Yep," his friend replied. "Almost had to. Ducked into their showroom to use the phone and didn't like to leave without buying something."

"Don't you ever fix the roads in this county?"

"What's the matter, George?" asked the woman as her husband got out of the car.

"Puncture," he said.

"You should have been on the lookout for this. The guide told you that there was a fork in the road."

At the wedding reception the young man remarked: "Wasn't it annoying the way that baby cried during the whole ceremony?"

"It was simply dreadful," replied the prim little maid of honor. "When I get married I'm going to have printed right in the corner of the invitation 'No babies expected.'"

A man, under the mellowing influence of far too many drinks and feeling hungry, approached a restaurant which had revolving doors. He pushed his way through the revolving doors, but went right around with them and came out into the street again.

Puzzled, he sat down on the curbstone to think things out, before again attempting to enter. While he sat there, a young man went through the doors into the restaurant, and immediately afterwards a young lady came out.

A few minutes later, an elderly man went through the door just before an elderly lady came out. The drunk rose unsteadily to his feet, carefully examined himself, then wended his way along the street muttering.

"That wash a lucky eshcape. I'm still a man."

"Have you been to any doctor before you came to see me?" asked the grouchy doctor.

"No, sir," replied the meek patient. "I went to a druggist."

"That shows how much sense some people have!" growled the doctor. "And what sort of idiotic advice did he give you?"

"He told me to come to see you."

Called up for jury duty, a woman refused to serve because she didn't believe in capital punishment.

Trying to persuade her, the judge explained: "This is merely a case where a wife is suing a husband because she gave him $1,000 to pay down on a fur coat and he lost the money in a poker game."

Woman: "I'll serve. I could be wrong about capital punishment."

Guy: "May I take you home?"

Gal: "Yes, where do you live?"

He increased production 20%

with an Allis-Chalmers tractor-dozer

Clyde Geraghty's Allis-Chalmers tractor-dozer really pays off in Alaska's semi-arctic conditions. The day-by-day dependability of his 66.5 net hp HD-6 makes 20 percent more operating time available.

Mr. Clyde Geraghty, President, Mitchell Truck & Tractor Service, Inc., Fairbanks, Alaska.

Dozes earth in summer

During Alaska's comparatively few weeks of summer, Geraghty's HD-6 works on road construction, clears homesites, digs basements, and landscapes. The tractor-dozer has plenty of power for these jobs.

Clears snowbound supply lines in winter

Through the long winter months, many families near the city and back in the bush are snowbound. They depend on Geraghty to keep roads to food and supplies open. His snow-clearing jobs range from a quarter mile to a full mile of road. Here's why Geraghty calls the HD-6 the best tractor we've ever owned.

Geraghty's HD-6 starts easily on the job site . . . is ready to work in a few minutes. Sure-fire, dependable direct electric starting right on the job saves from 5 to 10 gallons of fuel per month during the cold stretch.

Another reason for the increased production of Allis-Chalmers crawlers is the long lubrication intervals made possible by Allis-Chalmers design. There is no need for Geraghty to fight frozen earth to get at grease fittings—because the truck wheels, idlers and support rollers on his HD-6 need lubrication only once every 1,000 operating hours.

The advantages that Geraghty enjoys on the HD-6 are part of every Allis-Chalmers tractor-dozer. Models for every application range from 66.5 net hp to 225 net hp. Your Allis-Chalmers construction machinery dealer will be glad to demonstrate the machine you need on your job. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

Summer in Alaska finds Geraghty pioneering roads, clearing homesites . . . during winter he uses his Allis-Chalmers tractor-dozer to keep vital supply lines free of snow.

Look ahead... *move ahead* ...and stay ahead with **ALLIS-CHALMERS**

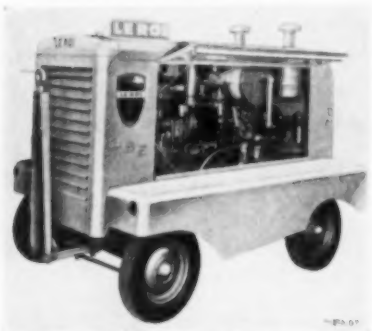
New Equipment . . .

Continued from page 47

members. The floor is of the dual, cushioned sandwich type with a floor plate of special heat-treated alloy steel selected to withstand impact and abrasion. Liner plates and wear bars are used for exceptionally severe service.

When handling lighter materials, side extensions are used to achieve the full rated payload capacity of the trailer.

Rotary Compressor



Manufacturer: Le Roi Div., Department EE, Westinghouse Air Brake Co., Milwaukee 1, Wis.

Claims: A new Le Roi 365-cfm rotary air compressor has an air compressor speed of only 1,100 rpm.

The 365RD2 model is the second of a new line of rotary air compressors. It is a portable, two-stage, oil-cooled, sliding vane type compressor rated at 365 cfm of free air compressed to 100 psi.

The compressor is coupled to a GM 471 diesel engine with a hydraulically actuated clutch. Engine speed at rated output of compressor is 1,650 rpm. A 100% capacity control matches air supply to the air demand within a pressure range of 10 psi.

The engine-compressor is supported on a unit welded steel frame and is enclosed in a heavy steel metal housing of streamlined design. Three-point suspension protects against damage from towing distortion over rough terrain. Dry weight of the 365RD2 is 7,010 pounds. Length is 10 feet 5 inches, width is 6 feet 8 inches and height is 7 feet 4 inches.

Automotive type steering, tapered roller wheel bearings, and 6.50 x 16 8-ply tires provide safe towing.

A positive gear-type oil pump is directly driven off the high pressure rotor shaft and is easily removed for inspection through the rear panel. Oil for lubrication and cooling of the compressor is stored in a reservoir located at the rear of the unit at the lowest point in the oil system.

The combination air-receiver-oil-separator is at the highest point in the oil system. A radiator-type oil cooler is located immediately ahead of the engine radiator and compressor oil temperature is thermostatically controlled. A manually adjustable radiator shutter aids in quick warm-up of both compressor and engine.

Safety protection includes automatic engine and compressor shutdown in the event of excessive discharge temperature, high engine coolant temperature or low engine oil pressure. The instrument panel, including all operating switches and gages, is located above the clutch lever, providing one-spot control operation.

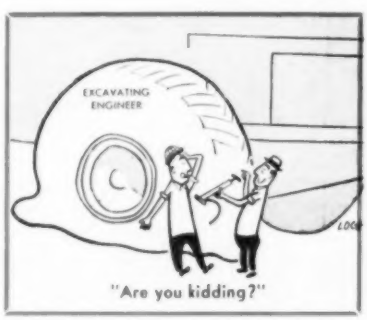
Small Diesel Engine

Manufacturer: Utica Bend Div., Department EE, Curtiss-Wright Corp., Utica, Mich.

Claims: Curtiss-Wright is now marketing the OM 312 Mercedes-Benz diesel engine in the United States. This engine, which is designed and built to high standards of quality, performance and economy, is manufactured in the 50 to 79-hp range from 1,400 to 2,400 rpm.

It is a 6-cylinder, vertical-in-line, 4-cycle, liquid cooled engine with a compression ratio of 19.5 to 1. It weighs only 990 pounds and can be installed in a limited space because it has small over-all dimensions—41 inches high, 36 inches long and 28 inches wide. The combustion system is the Daimler-Benz pre-combustion chamber type, utilizing Robert Bosch injection pumps and nozzles.

The OM 312 is available in either heat exchanger or radiator cooled design.



Ford Loader-Tractor

Manufacturer: Ford Motor Co., Tractor & Implement Div., Department EE, Birmingham, Mich.

Claims: An industrial tractor-loader with two and a half times the lift capacity of any previous Ford loader unit has been introduced by Ford's tractor division.

Larger and heavier than the familiar Ford general-purpose tractors, the new industrial tractor, has a 7,000-lb. capacity front axle and heavy weight-bearing frame. Its strength and capacity to withstand batterings and shock-loads is derived from a new concept of isolating such vital "equipment" as the driver, engine, hydraulic pumps and steering system from the members of the tractor which take the biggest beating in industrial service.

A massive malleable iron combination grille and bumper encloses and protects the headlights, cooling system, hydraulic reservoir and pump. This grille is attached to the tractor's load carrying frame. The shock-absorbing structure of the loader also attaches to this frame.

The power steering system features instant response, and the steering wheel requires less than a complete turn to go from straight ahead to full right or full left. A foot throttle, allowing the operator to over-ride his hand-set operating speed, gives fast shuttling and frees the operator's right hand to control the loader.

The tractor's Ford Red Tiger engine develops 42.5 drawbar horsepower in

Continued on page 54

10-YARD SHOVEL—Marion 191-M shovels, world's largest on two crawlers, are writing new chapters in excavating history at Fort Randall and Oahe dams on the Missouri River.

THERE ARE NO FINER DAM SHOVELS . . . draglines and cranes than Marions, and there's a Marion for every dam job. From 25 ton truck cranes through 35 yard walking draglines, there is a choice of crawler, walker or rubber mounted machines with front end equipment to handle all digging and lifting jobs quickly, economically and dependably. Let us show you how to get more with Marion. Marion Power Shovel Co., Marion, Ohio. A division of Universal Marion Corporation.

8-YARD DIESEL DRAGLINE—Biggest diesel dragline on crawlers, the Marion 183-M moves big yardages involved in dam and irrigation projects at a rate that obsoletes conventional equipment. Ward-Leonard electric swing.

New Equipment . . .

Continued from page 52

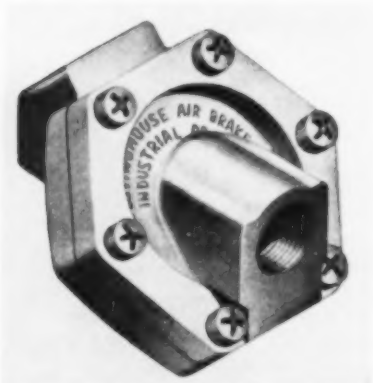
the gasoline models. A diesel engine also is available.

Ford's "Super-Duty" front-end loader, developed for use with this tractor, has a capacity at least a quarter of a ton greater than equipment in a comparable price range. The loader has a 2,500-lb. lift capacity, 5,500-lb. breakaway limit and a lift height of close to 11 feet. Regular bucket sizes are ⅜-yd. and ½-yd.

Hydraulic power for the loader comes from an independent hydraulic package, including oil reservoir, pump, oil cooler, filter and control. This package can be obtained as a factory installation.

Two models of the Ford industrial tractor are offered—the 1821 which is a standard-equipped model and the 1841 model, which in addition to standard equipment, has power take-off and an internal hydraulic system with three-point linkage for rear-attached equipment. Both feature a four-speed transmission with convenient shift-pattern for fast industrial work. Optionally available is a shuttle-transmission for rapid forward and reverse work.

Air Line Valve



Manufacturer: Westinghouse Air Brake Co., Industrial Products Div., Department EE, P. O. Box 36, Wilmerding, Pa.

Claims: Westinghouse has announced a new quick release valve that vents air cylinders faster, more efficiently and quietly.

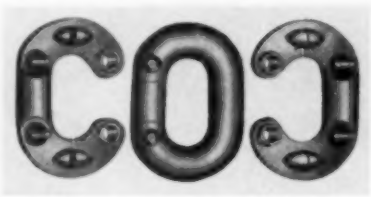
The valve, with its greater sensitivity, can vent pressure in increments as small as 6 psi. It weighs 7 ounces and can be installed without supports.

An outstanding feature of the valve is that its supply port can be assembled either on the same center line as the delivery port, or at right angles to it.

The valve is compact, corrosive resistant and rugged. It has only one wearing part—the diaphragm—which in many installations can be replaced when necessary, without breaking pipe connections.

The valve is suitable for use in lines to the air clutches and air brakes of cranes, shovels, dredges and other construction equipment.

Connecting Links



Manufacturer: Crosby-Laughlin Div., Department EE, American Hoist & Derrick Co., Fort Wayne, Ind.

Claims: Connecting hooks, swivels or rings to chain, or repairing chain, can be handled quickly and easily with the Crosby-Laughlin Missing Link. In a few seconds the halves of the Missing Links are joined simply by peening together. The resulting connection is stronger than welding, safer than cold shuts or cast links. In fact, the link is actually as strong as BBB chain.

The drop forged, heat-treated halves of the links have integral rivets and interlocking lugs which evenly distribute the load throughout the link when joined.

They are offered in all popular chain sizes, from $\frac{3}{16}$ to $1\frac{3}{8}$ inches.

Six-Passenger Truck Cab

Manufacturer: International Harvester Co., Department EE, 180 N. Michigan Ave., Chicago 1, Ill.

Claims: Six passenger Travel-Crew truck cabs for selected medium and heavy-duty International trucks are now available.

The Travel-Crew cabs are designed for factory installation on A and AC-160 models (16 to 19,000-lb. GVW); on A and AC-180 models (19 to 22,000-lb. GVW); and on four-wheel drive models in these two series. The new cab is also available for ACF-180 six-wheel models in both rear-axle and all-wheel drive versions (30 to 33,000-lb. GVW).

Development of the Travel-Crew cab follows development of the Travelette, International's six-passenger cab offered as factory equipment on pickups and light-duty service utility trucks. The Travel-Crew cab is designed for use by contractors, highway departments, public utilities and other fields. In some instances, one truck with a Travel-Crew cab can replace two or even more conventional trucks.

The Travel-Crew cab is roomy, yet it increases bumper-to-back-of-cab dimensions on all models by only 36 inches.

Either solid or two-tone colors are available for the Travel-Crew cab, with no additional cost for two-tone paint. Standard colors offered are the same as those presently available for all International A-Line trucks.

Salamander

Manufacturer: C. R. Daniels, Inc., Department EE, Daniels, Md.

Claims: A new Penguin salamander features an outside return pipe that draws off inert gases, soot and unburned material, and returns them to the flame, insuring complete combustion without soot or waste.

This design results in clean heat with no smoke and gives more heat per dollar of fuel cost. The salamander is easily lit with a match, and a damper is provided for positive extinguishing. Dif-

fusion of heat in low-ceilinged areas is insured by a special hood. The output is positively controlled with a regulator which accurately determines size of fire in the stack. The unit is made of heavy-gauge galvanized steel to resist rust and corrosion.

The new Penguin produces over 140,000 BTU and burns up to 20 hours on one filling, using kerosene or domestic fuel oil. The unit is 63 inches high and weighs 28 pounds.

Caterpillar Options

Manufacturer: Caterpillar Tractor Co., Department EE, Peoria, Ill.

Claims: Introduction of several new attachments designed to extend the working efficiency and ease of operation of the D4 and D6 tractors has also been announced.

In-seat starting, which allows all engine starting operations to be performed from the operator's compartment, is a newly-available attachment for the D4. With all starting controls mounted on the dash, the operator is able to start the gasoline engine without leaving the seat. This attachment may be ordered factory-installed on new machines, or may be installed on presently-operating machines having gasoline starting engines either manually or electrically started.

Another attachment, designed to allow D4 and D6 tractors to operate a full day without refueling, has been made available. The D4 attachment, a 45-gallon fuel tank, allows the tractor to operate 50% longer between refueling stops than with the standard 30-gallon tank. The large capacity fuel tank for the D6 is rated at 60 gallons, an increase in size of 25% over the standard 48-gallon tank.

This feature gives both tractors more than enough fuel capacity to work a 10-hour shift at full load without refueling. It is available for factory or field installation.

Caterpillar has also introduced a new track shoe, which has the quality of becoming "work-hardened" under the continued pounding of extreme applications, for the D8 and D9 tractors.

Designed primarily for work in rock and slag, the new grouser shoes are cast from high manganese steel containing 12% to 14% manganese. This specially-alloyed steel becomes "work-hardened" under the continuous pounding of rock or slag particles, resisting wear better than a standard steel track shoe.

The new shoes are initially ground smooth on the rail side to provide a smooth, secure shoe-rail fit. Manganese grouser shoes for the D8 and D9 tractors are available in widths of 22 inches and

27 inches, the standard widths respectively, for both tractors.

These shoes are intended for the special applications where track shoes are subjected to constant pounding or shearing-type wear that is encountered in rock. For grouser application in sand and earth, the standard steel track shoe is recommended.

Bucyrus-Erie dragline buckets--
BEST *ANGLES* FOR FAST DIGGING

A Bucyrus-Erie dragline bucket "hits the dirt" digging. Teeth and cutting edge are pitched at exactly the right angle. Weight is accurately balanced for digging in at the most effective angle. Slicing-action lip is shaped to speed penetration, and basket is tapered to fill rapidly.

This modern bucket not only digs fast, it carries and dumps quick and clean — for high output, low cost per yard. It's made of BECOLOY, too, both for light weight and for extra toughness to keep working.

Find out more about Bucyrus-Erie new design dragline buckets' BEST ANGLES FOR DIGGING. Your distributor will help you choose the size and type to fit your needs. 45R58C

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

As workmen lay reinforcing steel fabric, a Manitowoc 3500 Speedcrane pours concrete for composite pipe piles. The crane moves up continuously on completed areas of the dock to handle materials and pour concrete for the next section of the deck slab.

Brooklyn . . .

Continued from page 21

the bulkhead. A 30-ft. jib was added and the boom was extended to 100 feet to increase its reach.

"The big cats make a lot of difference in our work," Superintendent Nils Danielson said. "We've had the 54-B reaching out as far as 120 feet from center of rotation with the boom in an almost flat position to pick up 1½-ton walers on shore."

Maneuvering the barge was made possible by a Rawson-Morris two-drum air-operated hoist powered by an air line working off the compressor carried on the rear of the crane.

While the pile work was still going on, the contractor started clamping off the newly-driven timbers, cutting them off 3 feet above low water. A network of wood lagging was attached to the piles at low water to support the precast concrete pipe slipped over the top of each pile. A 24 x 24 x ½-in. piece of Transite, cut out to fit around the wood pile, was placed at the bottom end of the pipe to retain mass concrete. Reinforcing rods were also set into the pipes extending upward over the tops of the concrete pipes so that the filled pipes could be bonded into the concrete deck slab pour. For temporary support of the deck slab forms, 2 x 12 walers 20 feet long were hung on either side of the concrete pipes. Corrugated steel sheets placed on the walers retained the deck pour. These sheets were then cast permanently into the bottom surface of the slab.

Placing of the concrete pipe shells and concrete itself was handled by a Manitowoc 3500 Speedcrane equipped with 100-ft. boom and a 2-yd. Insley laydown bucket. As it poured the deck, the Manitowoc moved up continuously from old work to new.

Heading Horn Construction Co. personnel is Superintendent Nils Danielson (left) shown with Master Mechanic Jimmy Fordyce, who inspects equipment regularly.

Install Bulkhead

As pile and deck work progressed, a piledriver was assigned to begin the guide system for driving the steel sheeting bulkhead wall. Three piles—two plumb and one batter—were driven at 36-ft. intervals along the line of the future dock wall. For the guide itself, the contractor used a pair of 14-in. wide 89-lb. steel beams 85 feet long which laid on the pile bents properly aligned, blocked and spaced. The guides permitted standing up the sheeting and driving it.

At the same time the guides were installed, a catwalk and handrail were hung along the piles to give access for workmen and also to carry fuel lines to supply crane and compressor engines with diesel oil from trucks on shore.

The area closed off by the bulkhead

Piledriving Specialist

For a firm that has been in business less than 14 years, Horn Construction Co., whose home base is Merrick, L. I., has grown with amazing speed. It has an enviable reputation along the eastern seaboard for doing efficient work in its field of specialization—contracting substructures. Piledriving is one of the firm's several specialties.

Recently, it did a major portion of the piledriving on the Connecticut turnpike amounting to several million dollars. In one phase of the project, it worked one year with nine machines driving piles for many highway and railroad bridges from Greenwich to Bridgeport, Conn.

Idlewild International Airport, where a multi-million dollar expansion program is in progress, has also been the scene of more Horn activity. There the firm dug excavations and drove piles for hangars of Pan American, Eastern Airlines and American Airlines.

On the New Jersey turnpike extension, Horn handled structural work in four contract sections, including piledriving, substructures and foundation and bridge decking.

Other major jobs include a large oil refinery dock in Pennsylvania and installation of decking on the Kingston (N.Y.) suspension bridge across the Hudson River.

Much of the firm's success can be attributed to the fact there has been little turnover in personnel. Horn has close to a dozen professional crane operators who have been with the firm for a 10-year period or more.

Jim Picciano, 54-B operator, has been a member of New York Local 114 of the International Operating Engineers for 35 years and with Horn about seven years. Judd Langielle is a 30-year member and part of the Horn organization for 10 years. Master Mechanic Jimmy Fordyce has been with Horn 10 years and a member of the operating engineers for 35 years. With wide operating experience and mechanical know-how, Jimmy is a highly respected member of the company's staff, according to his associates. When Jimmy says a job can or can't be done with a certain piece of equipment, his word is unquestioned. To keep equipment in top order, he has eight first-class mechanics working with him.

Moses Hornstein, head of the firm, can operate many types of construction equipment himself. He started out in the construction business as an estimator. He bought one rig and went into business for himself. Following in his father's footsteps is Larry Hornstein who recently superintended three railroad grade elimination contracts on Long Island.

sea wall is roughly a rectangular area about 300 x 1,000 feet. The bulkhead is a tied-back type fastened to a steel sheeting anchor wall driven on land. Specially cast 3⅛-in. diameter tie-rods extend between the two walls at 9-ft. intervals. They stretch from an underwater position at the outer wall to the top of the inshore anchor wall. Two rods of 54-ft. length were joined by a turnbuckle to bridge the 108-ft. gap between walls.

About 1,500 tons of Bethlehem ZP38 sheetpiling 67 feet long were used in the sea wall. A Bucyrus-Erie 51-B piledriver, mounted on a 42 x 192-ft. scow similar to the one carrying the 54-B machine, drove the piles in 35 feet of water. The crane carried a 60-ft. boom, pile leads 110 feet long and a McKiernan-Terry C5 hammer supplied with air by a Chicago-Pneumatic model 600 compressor. The scow was powered by a Lambert air hoist similar to the 54-B crane float.

In the anchor wall are 656 pieces of Bethlehem ZP27 piling in 16-ft. lengths. The piledriver in this case was a 38-B crane working on shore. The 38-B had a 50-ft. boom and 80-ft. leads. It also carried a C5 hammer which was supplied by a 900-cfm Ingersoll-Rand compressor.

A relieving platform, consisting of 220 timber piles driven plumb and batter, takes stress off the northwest corner of the bulkhead at a point about 270 feet offshore. The piles are driven to 25-ton bearing. This platform carries the weight of the superimposed fill material directly into the bearing piles, thereby relieving lateral earth pressures on the sheetpiling. The piles are decked over with wood timbers and concrete.

Protecting the pier walls are 300 oak fender piles of 13-in. nominal diameter, driven along the perimeter of the dock, to which the fender system is attached.

Sand fill was spread within the bulkhead area by an Allis-Chalmers HD-20 and a Cat D8 dozer. The sand was compacted with a Terrapac type CH30 vibratory roller, which made six passes over each lift. Above the high water mark fill material was placed in 24-in. thick lifts.

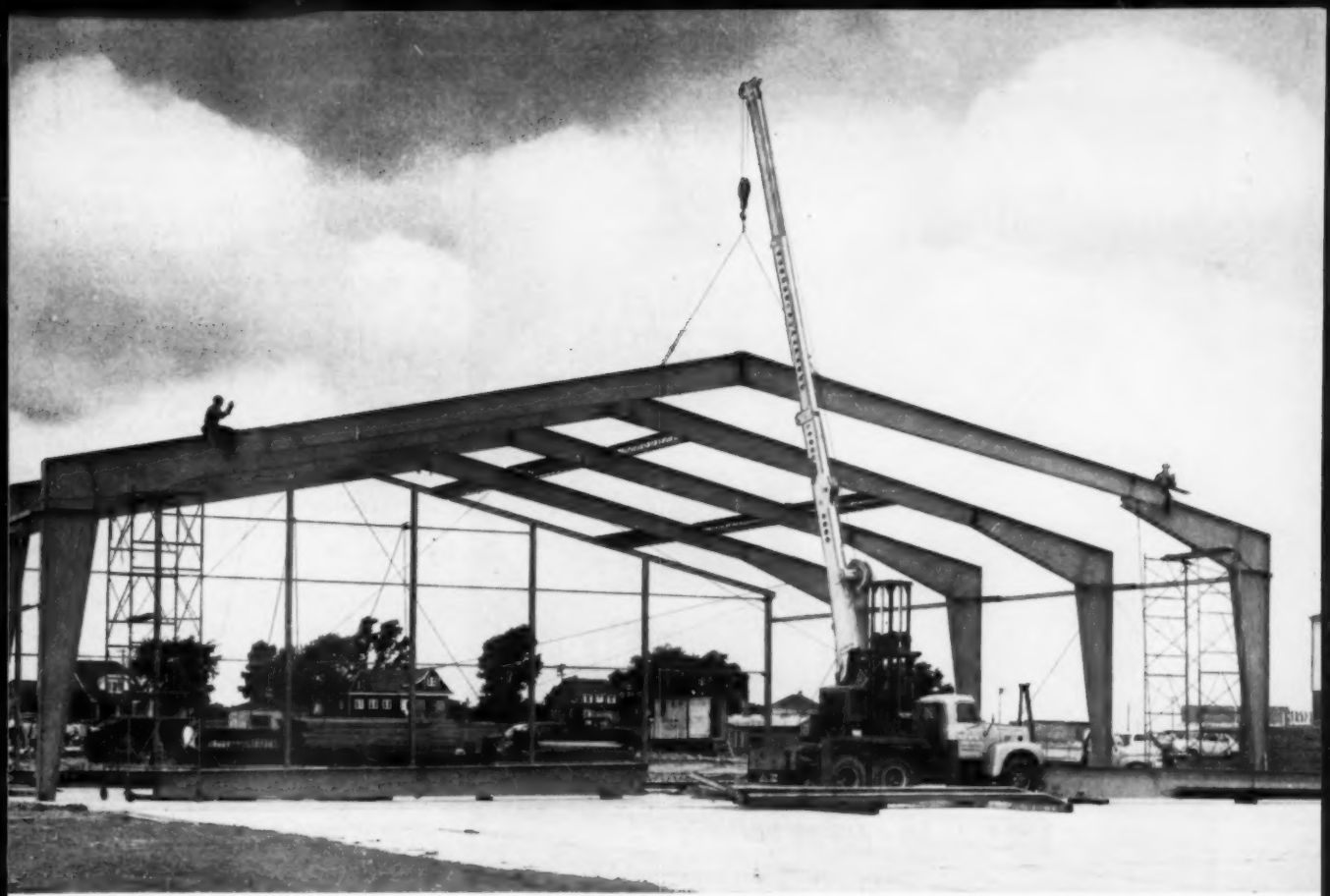
Horn assigned several cranes to backfill the surcharge material for the upper part of the bulkhead fill after all bracing work was completed. The 54-B and 51-B were equipped with 2½-yd. dragline buckets for this purpose.

Asphaltic concrete paving will be placed over the compacted sand. This

Continued on page 60

A recent Horn Construction Co. project was the elimination of three grade crossings of the Long Island railroad. At Massapequa, L. I., a Transit Crane swings a 1-yd. bucket under power lines while concreting a wall of a railroad overhead structure.

EX-LAFFS
by SIG LOCH
HOLD IT HERB, WHY ARE YOU SO INTERESTED IN NATURE ALL OF A SUDDEN?
WILDLIFE REFUGE
CAN'T YOU PLAY ANY OTHER TUNE BESIDES SWAMI RIVER?
YOU'RE SURE CLEVER TO COMBINE YOUR HOBBY WITH YOUR PROFESSION
HE SOLVES A LOT OF IMPOSSIBLE ENGINEERING PROBLEMS FOR US
I'M GOING TO "BLOW-UP" IF THIS THING DOESN'T START WORKING SOON!
I'M SORRY MARY, BUT WE HAVE ALL THE "CATS" AND "SHEEPSFOOT" ROLLERS WE NEED
WIRE O ROPE
EXCAVATING ENGINEER



Outriggers down, boom extended, this Hydrocrane lifts a heavy girder for an airplane hangar in Milwaukee, Wisconsin.

To give you a money-makin' edge . . .

HYDROCRANE'S BUSY BOOM PICKS UP EXTRA JOBS—EXTRA PROFITS

Boom swings left and right . . . telescopes in and out . . . moves up and down — at the flick of a lever. That's how Bucyrus-Erie's *all-hydraulic* Hydrocranes can get in more lifts per day, build extra profits. With this boom, you can change boom angle *and swing or telescope at the same time* — a real money-makin' edge on competition.

And, there's plenty of reach. Boom telescopes 8 feet on the 5-ton H-3, 12 feet on the 12-ton H-5. For longer reaches, 10 and 18-ft. jibs are available for the H-3 — 10 and 20-ft. jibs for the H-5.

Then, for fast between-job travel, the boom retracts neatly into a compact unit that nests over the cab . . . makes machine legally transportable in terms of overall length, (less than 35 feet overall).

Your Bucyrus-Erie distributor is ready to show you the busy boom that gives you a money-makin' edge on competition. 239H58C

Other Hydrocrane money-makin' edges

- low-cost new or used standard commercial motor truck mount
- short tail swing for close-quarter jobs
- quick setups and knock-downs, open road speeds up to 50 mph
- high lift capacity per pound of truck, per foot of tail swing

A Familiar Sign . . . BUCYRUS ERIE *. . . at Scenes of Progress*

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

FOR 50 YEARS...
Finest in the Field!
Rely on the bucket contractors rely on. The Omaha Dragline Bucket gives full load with every cast. Perfect balance makes it easy to spot dump. Alloy steel cutting teeth stay sharp, tough and ready. Strike pay dirt now! Complete information and specifications await your letter.
DRAKE-WILLIAMS MOUNT
• OMAHA, NEBR.
OMAHA
DRAGLINE BUCKETS

Brooklyn . . .

Continued from page 57

pavement will be 12 inches thick. The level of the fill area, like all other piers, is being built 12 feet above mean low water to avoid damage from hurricanes. Previous level of piers in the area was 9½ feet above MLW.

Superintendent Danielson ran Horn's contract with the assistance of Jan Polivka, project engineer, and A. J. Scrudato, general foreman. The Horn organization is headed by Moses Hornstein, president, with L. S. Joseph as chief engineer. The firm was incorporated in 1945 and is equipped to handle major contracts in all phases of heavy construction, pile and foundation work, docks and piers, highway bridges and railroad work.

For the New York Port Authority, Anthony De Biase, resident engineer, is in overall charge of construction. George Husing is assistant resident engineer for the Port Authority. Bruce Cameron is project engineer.

The bi-state Port of New York Authority is administrative agency for numerous New York-New Jersey facilities in addition to waterfront piers in Brooklyn and Newark. It is entrusted with care of the Lincoln and Holland tunnels; four large bridges (George Washington, Goethals, Bayonne and Outerbridge Crossing); four airports (LaGuardia, International, Teterboro and Newark); two truck terminals; a heliport; the Port Authority building, which is the world's third largest commercial building; and the world's largest bus terminal.

Kuehn . . .

Continued from page 32

who does preventive hardfacing the biggest part of his time. Major equipment servicing is done by this man, too. But all in all, there's very little down time, because the machines are kept in top-notch operating condition so that their effective work ratio is 90% or better. There are usually two slack months in winter which give him time for complete inspections and major repair. Up to now, however, even the three-year old 22-B has not required extensive overhauling. And this, despite six and seven days per week work.

Kuehn doesn't even carry a listing in the yellow pages of his local telephone book. Repeat orders by larger contractors who have been pleased with his work have been responsible for Kuehn's steady growth. The pipeline contractor whose job was partly made profitable as a result of the 22-B's work near Fraser, Colo., gives Kuehn excavating work every chance he gets. The large housing development contractors around Denver are his steady customers. And occasionally Kuehn will drum up other business on his own if a job is attractive.

On the chance that Kuehn's rapid growth might be misinterpreted, it should be stated that he didn't get that good in the short three years he's been in business. He actually got into the excavating business 20 years ago, working as an operator with his father who is still active in Colorado. So, when he went out on his own, he had 17 previous years of experience running machines and jobs to back him up.

This, sharpened by the tough competition of a business slump, has benefited Kuehn, permitting him to add all the time to his list of satisfied customers. And that is probably why he reiterates that a temporary slump is not bad. It permits a man to regroup, to review organization or methods, and to get better—not worse.

Maney . . .

Continued from page 30

being laid in rock at depths as much as 400 feet.

Heading Maney personnel on the Southeast expressway contract is Bill Hagan, general superintendent. A veteran of about 10 years with the firm, Hagan has had a wide and varied construction career. During World War II, Hagan was excavation superintendent on the site of a large air base project in Newfoundland where he directed operation of some 40 cranes and excavators.

A. (Del) DelZoppo is superintendent; Paul Peterson is grade foreman; and Ralph Rand is master mechanic.

Resident engineer for the Department of Public Works on the Maney job (contract 7A) is Hubert (Scotty) Scott.

C. J. Maney, Inc., is headed by Joseph T. Cunning, president. Frank Soule is general manager and George W. Sands purchasing agent.

The Massachusetts state department of public works is under the direction of Anthony N. DiNatale, commissioner.

Acting as consulting engineers to the department for the Southeast expressway project is a joint venture of Maurice A. Reidy and Clarkeson Engineering Co., Inc., Boston.

Roebling Presents

THE NEWEST CONCEPT IN WIRE ROPE

*Herringbone**

two ropes in one!

Here is a combination that has proved itself during three years of field testing. A welcome addition to Roebling's great line of wire ropes, Royal Blue *Herringbone* is both a regular lay and lang lay wire rope!

So, in one rope you have the greater flexibility and abrasion resistance of lang lay construction *plus* regular lay's superior stability under severe operating conditions.

Preformed Herringbone is made of two *pairs* of lang lay strands, and two strands of regular lay which separate the two pairs of lang lay—all of it made of Type 1105 rope wire.

For three years Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. Without reservation, its performance has been superior to that of any other rope used for the same jobs . . . even in the hands of inexperienced personnel! *Its proven capabilities clearly suggest its use for all jobs where steel core ropes are normally used.*

See your Roebling salesman for all the facts or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey. Roebling Herringbone, the two-in-one rope to meet the *doubly* stringent demands of today's economy.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

**Reg. app. for*

HERRINGBONE
WIRE ROPE

BUCYRUS-ERIE ROTARIES Speed Blast Hole Drilling

A new drilling record was established at this large open pit coal mine in Indiana when the 50-R shown here was put into operation.

BUCYRUS-ERIE rotaries are increasing drilling footage at open pit mines everywhere. Their ability to put down hole fast results from an exclusive combination of features — variable drilling speed and variable down pressure.

For controlled speed, the Ward Leonard variable voltage system gives the operator smooth, instant command over rotation of the drill pipe. He can choose the most efficient speed for a given formation. To meet requirements, he can vary the speed without stopping the drilling operation.

In hard formations, maximum down pressure can be exerted on the bit while the drill pipe is turning slowly. This gives greatest possible penetration.

In soft formations, the operator can increase rotating speed substantially as he cuts down pressure. He can match pulldown force and rotation speed so tools do not advance faster than cuttings are removed. At the same time he keeps up enough air velocity to remove cuttings from the hole.

For the full story on Bucyrus-Erie rotaries, contact Bucyrus-Erie Company, South Milwaukee, Wis. Ask for illustrated bulletins on the 50-R (full-electric rig for drilling 9⅞ to 12¼-in. holes) and the 40-R (diesel or electric rig for drilling 6¾ to 9-in. holes).

71B58C

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

New Trade Literature

Subject: **Tractor Textbook**

Content: *Tractors and Crawlers*, a 308-page book by Irving Frazee and Philip V. Eshelman, provides a wealth of up-to-date, factual information on the design and construction of modern tractors and crawlers of just about every size and type. The volume has been written to meet the need for a comprehensive training plan to provide the broad knowledge of principles necessary to the skillful selection, maintenance and repair of tractor units. Design and construction features are covered thoroughly. Chapters are included on suspensions and steering, engines and accessories, power trains, brakes and hydraulic systems. Many of the chapters were reviewed for accuracy and thoroughness by companies engaged in the manufacture of the equipment discussed in the book. Price is $7.50.

Where to get: American Technical Society, Department EE, 848 E. 58th St., Chicago 37, Ill.

Subject: **Generator Set**

Content: Highlights of design, engineering and construction features of the recently introduced Allis-Chalmers G-226 portable, lightweight generator set are covered in a 6-page catalog. Included are sketches showing in-use application of the unit, engine cutaways, and photographs of other components. Specifications of the basic generator are also included. Ask for catalog BU-412.

Where to get: Engine-Material Handling Div., Department EE, Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Subject: **Wheel Tractors**

Content: A six-page folder explains features of the new Caterpillar DW21 (Series D) and DW20 (Series F) wheel tractors. The brochure deals primarily with two features—the Super Turbo engine and Torsionflex seat. To point up the higher work speeds and increased torque rise afforded by the new engine, travel times from an actual job are cited, along with graphs showing comparative torque rise characteristics of the new machines and their predecessor models. A detailed explanation of the new pressure ratio control system of air induction, which allows the turbocharger to cover a more complete range of operating speeds, is given. This new feature is graphically shown in a schematic diagram of the engine's air induction and exhaust system. Principles used in the Torsionflex seat are detailed, with emphasis placed on the new "torsion spring" suspension. Information is also included on the Cat. No. 456 and No. 470 scrapers matched to the new wheel tractors. Ask for form 33058.

Where to get: Caterpillar dealers or Caterpillar Tractor Co., Advertising Div., Department EE, Peoria, Ill.

Subject: **Gradall Manual**

Content: A spiral-bound, pocket-sized reference manual contains handy information on the Warner & Swasey Gradall. It contains drawings portraying dimensions and specifications and a well-rounded selection of photographs of various models on typical jobs. Photos show the standard truck-mounted, crawler-mounted, self-propelled, and railroad models, as well as complete descriptions of 17 different attachments.

Where to get: Gradall Div., Department EE, Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

Subject: **Marine Mounts**

Content: A 6-page catalog describes Manitowoc marine mounts for offshore drilling, dredging, shipboard cargo handling, canal excavation, shoreside material handling and marine construction. The booklet outlines engineering features that provide dependable performance. The units are available in a full range of sizes—20 to 100-ton cranes and 1 to 6-yd. excavators.

Where to get: Manitowoc distributors or Manitowoc Engineering Corp., Department EE, Manitowoc, Wis.

Subject: **Road Machinery**

Content: A 32-page bulletin describes the complete line of Huber-Warco road machinery. A section devoted to motor graders tells the complete story on both standard transmission and torque converter equipped models including construction features such as the frame, circle and drawbar, front axle and the tandem case. A section on tandem rollers discusses the torque converter, two-speed transmission, the tail shaft governor, close curb clearance, independent braking systems and other features. A third section deals with 3-wheel rollers, both variable and standard weights, and a fourth section with the all-purpose maintainer. Ask for bulletin HWC 541.

Where to get: Huber-Warco Co., Department EE, Marion, Ohio.

Subject: **Submersible Pumps**

Content: Portable, fully submersible Flygt electric pumps for mining, contracting and general industrial use are described in a two-page bulletin. One outstanding feature of the pumps is the ability to handle a very high proportion of solids. The pumps will run for long periods without attention, and will not suffer damage if allowed to run dry. Pumping starts again instantly when water flows into the sump. Flygt pumps will drain water down to an inch in depth, are easily moved around and require no suction hose or installation. The folder gives capacities, weights, horsepower and other details.

Where to get: Stenberg Mfg. Corp., Department EE, Hoosick Falls, N. Y.

New Movies . . .

Subject: **Belt Conveyors**

Content: Barber-Greene has produced a new documentary film, *Standardization for the Long Haul*, on the employment of belt conveyors in major construction and aggregate producing applications. Among major jobs portrayed in the 16mm sound and color film are those involving the production of aggregates or the handling of wet concrete for the building of Folsom Dam; the Barnhart Island power plant of the St. Lawrence Power project; Oahe Dam; and Chicago's underground parking lot and Lake Calumet port facilities. Other portions of the film describe several major commercial aggregate and ready-mix installations, including the plant of Cleveland Builders Supply Co. where many hundreds of types of ready-mix specifications are tabulated on punched IBM cards and translated electronically into actual mixes.

Where to get: Barber-Greene Co, Department EE, 400 N. Highland Ave., Aurora, Ill., or Barber-Greene distributors.

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number. If blind advertisement is desired, Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example: January closes December 10th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES — 3 YDS. & UP

Bucyrus-Erie 750-B shovel, serial No. 9725. Shipped from factory in 1928. Has 95-ft. boom, 64-ft. handle and 20-cu. yd. dipper. Location Ohio. Price: $150,000, as is, where is. Box 3737.

4—200-W Bucyrus-Erie draglines.
1—620 Page dragline.
1—1201 Lima dragline.
1—80 D Northwest shovel.
1—120-B dragline boom.
1—Koehring 1½-yd. elec. tunnel shovel.
1—44-B Bucyrus-Erie shovel.
6—9 LTD Euclids, bottom dump.
4—36 TD Euclids, end dump.
1—34 E Foote paver.
4—34 E Rex pavers.
1—326 Northwest shovel front.
Complete Catalogue on Request.

WESTERN EQUIPMENT CO.
Used Machinery Division
4009 Fairview Avenue
Box 877, Boise, Idaho

FOR SALE

650-B Bucyrus-Erie Elec. Drag, 195', 16-yd.
15-W Bucyrus-Erie Elec. Drag, 215', 13-yd.
9-W Bucyrus-Erie Diesel Drag, 175', 13-yd.
7400 Marion Elec. Drag, 160', 13-yd.
625 Page Diesel Drag, 150', 10-yd.
723 Page Diesel Drag, 130', 10-yd.
621-S Page Diesel Drag, 125', 7-yd.
200-W Bucyrus-Erie Diesel Drag, 125', 6-yd.
7-W Bucyrus-Erie Diesel Drag, 180', 5-yd.
5-W Bucyrus-Erie Diesel Drag, 100', 6-yd.
2400 Lima Dragline, 130', 5-yd.
4500 Manitowoc Drag, 120', 5-yd.
88-B Bucyrus-Erie Drag, 90', 4½-yd.
111-M Marion Drag, 80', 4-yd.
1055 P&H Dragline, 80', 3½-yd.
3900 Manitowoc Speedcrane, 100' boom.
3500 & 3000 Manitowoc Crawler Cranes.
5560 Marion 26-yd. Elec. Shovel.
750-B Bucyrus-Erie 20-yd. Elec. Shovel.
5458 Marion 18-yd. Elec. H. L. Shovel.
170-B Bucyrus-Erie 6½-yd. Elec. Shovel.
120-B Bucyrus-Erie 4-yd. Elec. Shovel.
111-M Marion 4-yd. Standard Shovel.
Large selection of smaller shovels and draglines available.
Model T-750 Reich Truck Mounted Rotary and Down-the-Hole Drill.
Lima Model "C" Roadpacker.
Euclid Trucks, Truck Cranes, Dozers, Scrapers, Front End Loaders, Drills, Buckets, Attachments and other misc. equipment available.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

Bucyrus 1050-B shovel, 20-36-yd.
Bucyrus 650-B walker drgl, 16-20 yd.
Bucyrus 550-B shovel, 17-22-yd.
Marion 360-M drgl, 8-yd. 175-ft. bm. cats.
Whirley gantry cranes (3) Euclids.
Buckeye 260 trencher, 12-ft. x 26-ft. diesel.
Dredges, placer, dipper, hydraulic (5).

H. Y. SMITH CO.
828 N. Broadway Milwaukee, Wis.

LARGE SHOVELS, CRANES, DRAGLINES — 3 YDS. & UP

Bucyrus-Erie 120-B dragline, 100' boom with gantry mast, 4' tracks. A-1 condition, located northern California. For sale or lease.

THURMAN & WRIGHT
625 Market Street San Francisco, Calif.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

¾-yd. model 10-B Bucyrus-Erie shovel (1949) good working condition. Available immediately. Price $5,500

⅜-yd. model H-3 Bucyrus-Erie Hydrocrane (1948) mounted on Chevrolet truck chassis, equipped with tagline reel, 12 ft. boom insert, operator's cab, hydraulic clamshell bucket. Very good condition.

½-yd. model H-3 Bucyrus-Erie Hydrocrane (1951) mounted on I.H.C. truck chassis, equipped with operator's cab, tagline reel, clamshell bucket. Very good condition.

¾-yd. model 375 American crawler shovel with Waukesha gas power (new 1949). Needs work. Price $3,750

¾-yd. model 255 P & H crane-dragline combination equipped with new Cummins diesel. Machine repaired and in good working condition. 35-ft. boom, fairlead, repainted. Available immediately.

1-yd. model LS-90 Link-Belt shovel new 1953, Waukesha gas power. Excellent condition. For sale or for rent. $14,500

1¼-yd. model 33-B Bucyrus-Erie crane-clam-dragline machine, 70-ft. boom, independent boom hoist, gas power. In very good condition. A lot of machinery for $15,500.

1½-yd. model 604 Lima crane-dragline machine (1951), with Cummins diesel engine, 80-ft. boom and fairlead. Was overhauled last winter, very good condition. Price $25,750. Now rented, but is available for sale.

2-yd. model 820 Lorain crane-clam-dragline combination—Cat D13000 diesel engine, swamp cats, 110-ft. flange type boom, fairlead, pressure lubrication system. Excellent condition.

3-yd. model 1201 Lima crane-dragline machine (1950) with Buda diesel engine, long wide crawlers, 110-ft. boom—in good condition. Priced to sell under $38,000 at job site.

SUBJECT TO PRIOR SALE

See us for rental cranes up to 3 yards.

J. P. WAITE, INC.
3304 W. Pierce St. EVergreen 4-1900
Milwaukee 1, Wis.

Bucyrus-Erie 38-B crane boom, 85', complete with mast, pendants, drum lagging and hook block—perfect condition. For details consult—

POLK EQUIPMENT CO.
490 N. Broadway Bartow, Florida

Bucyrus-Erie 38-B dragline with 17.5 frames, 33-in. pads, 671 General Motors, 50-ft. boom, generator set. Condition good. Make offer to: Wolverine Tractor & Equipment Co., 25900 W. 8 Mile Road, Detroit 19, Mich. Phone: KEnwood 4-8400.

SMALL SHOVELS, CRANES, DRAGLINES—UP TO 2½ YDS.

SHOVELS

LIMA Model 34 Paymaster, ¾-yd. Crane, 40' boom, G. M. Diesel engine. Reconditioned. Price $14,000

BUCYRUS-ERIE 38-B Shovel, 20'-5" dipper stick, 1¾-cu. yd. dipper, powered by International Diesel engine. Rebuilt. $38,500

SHOVEL ATTACHMENT

BUCYRUS-ERIE Tunnel Shovel attachment for 22-B consisting of 14' boom, 12'-10" stick, 1-cu. yd. rock dipper, crowd drum, sprocket and crowd chain. Excellent condition. $2,200

TRUCK CRANE

LIMA 44T Truck Crane, 25-ton combination clamshell and lifting Crane, 80' boom, 30' jib, Rudomatic tagline, Dart carrier, 9' wide, Waukesha engines. Very good condition. 30 day guarantee. $30,000

SCRAPERS

CATERPILLAR Model DW21 Tractor with Cat No. 21 Scraper. Certified Buy. 2 units each. Price $23,500

(3) LE TOURNEAU Model LS, 4-wheel Scrapers. (11-yd. cap.). Excellent condition. Each $3,250

(3) LE TOURNEAU Model LP, 4-wheel Scrapers. (15-yd. cap.). Excellent condition. Each $4,500

TRACTORS

INTERNATIONAL TD-24 Diesel Tractor with crankcase guard, 24" tracks, pull hook, elec. starter, canopy top, Bulldozer blade and D.D. P.C.U. Good Operating condition. ...$10,500

ALLIS-CHALMERS HD-20H Diesel Tractor w/Garwood Bulldozer and D.D. P.C.U. Operating condition. $10,500

CATERPILLAR D8 Diesel Tractor with oil clutch, 24" tracks, pull hook, canopy top and Cat 8S cable blade with Cat No. 25 D.D. P.C.U. Bonded Buy. $20,500

TRENCHER

CLEVELAND No. 55 Trencher, option 5, 16" buckets, 21½" cut, powered by Continental gasoline engine. Rebuilt. Good value....$6,600

Subject to inspection and prior sale.

H. O. PENN MACHINERY CO., INC.
140th St. & East River CYpress 2-4800
New York 54, N. Y.

Northwest model 80-D, 2½-yd. shovel and dragline, including 60-ft. boom and bucket. S/N 12504. Murphy diesel engine completely rebuilt. Condition is good. Warranty.

Northwest model 25, ¾-yd. shovel, dragline, and hoe. 30-in. track shoes, 40-ft. crane boom, and gambered type boom. S/N 16806. Excellent condition and guaranteed. $21,000

Koehring model 304, ¾-yd. shovel, backhoe and dragline. S/N 5647. GMC 4-71 diesel engine has had only 800 hours use. This unit has been completely overhauled in our shop. Price includes all three front ends. $16,000

Hansen model 31 shovel, backhoe and dragline. S/N 2120. IHC UD-6 diesel engine. Price includes all three front ends. $3,950

Yale electric crane, model K42-SH-6-7-78U, 6,000-lb. capacity, 12-ft. to 18-ft. telescopic revolving boom, and hard rubber tires. Has never been used. Unit sells new from factory for approximately $17,900. Our price, less batteries and battery charger $4,750

Call—Wire—Write

LANG CONSTRUCTION EQUIPMENT CO.
P.O. Box 1646 Salt Lake City, Utah
DAvis 2-1241

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Bucyrus-Erie H-3 Hydrocrane, S/N 93753. This is a 1952 machine factory mounted on a 1952 Ford F-6 truck. Complete crane equipment, ⅜-cu. yd. clam bucket and backhoe front. Machine and truck in excellent condition. Priced to sell.

Bucyrus-Erie 19-B dragline 40-ft. boom, ¾-yd. bucket. Powered by Chrysler 8-cyl. engine, upper works good. Price, F.O.B. Minneapolis, Minn. $3,950

Bucyrus-Erie 22-B, S/N 60432, 1948 model dragline with 45-ft. boom, 26-in. pads, 12-ft. crawlers, Cat 318 power unit. Very good condition.

Link Belt LS75 S/N 1E996, ¾-yd. dragline, 45-ft. boom, 1947 model Cat D4600 diesel engine. Completely overhauled. Price F.O.B. Minneapolis, Minn. $9,250

Insley K12, S/N K12-1494—½-yd. shovel and dragline combination. 35-ft. boom, power unit Buda 326 gasoline engine. In operating condition. Price F.O.B. Hibbing, Minn $4,400

Quickway S3, S/N 1561—1955 model dragshovel, powered by International U-164 gasoline engine. Mounted on 1944 White halftrack. Good condition. Low price.

Michigan T6K, S/N 5503 truck crane, backhoe, shovel front and dragline. 28-ft. boom, ⅜-yd. drag bucket. Powered by Hercules gasoline engine. Low price.

Write or Call
A. R. "Bud" Raymond

WM. H. ZIEGLER CO., INC.
2929 University Ave., S.E.
Tel: FRanklin 1-7971
Minneapolis, 14, Minn.

Northwest 25 dragline with 45-ft. boom and Cummins diesel engine. Serial #6488. Price f.o.b. Greensboro, N. C. $7,000

Quickway model "E" dragline machine with 35-ft. boom, GM 2-71 diesel engine, and mounted on Army 6x6 truck. Serial #5768. Price f.o.b. Greensboro, N. C. $4,000

Lorain TL-20 combination shovel dragline backhoe machine with Cat D311 diesel engine. Serial #18422. Price f.o.b. Greensboro, N. C. $11,500

Shovel front for 15-B. Excellent condition. Price f.o.b. Greensboro, N. C. $1,200

Shovel front for Northwest 25 with trip. Price f.o.b. Greensboro, N. C. $1,200

E. F. CRAVEN CO.
P.O. Box 3307 **Greensboro, N. C.**

1—Bucyrus-Erie 15-B dragline—Cat diesel power.

1—Koehring 303—¾-yd. dragshovel, standard crawlers—Waukesha gasoline engine.

1—Worthing 16-S two bag concrete mixer on 4 pneumatic tires with 4-cylinder Wisconsin gas engine. Excellent buy.

1—Wiley PM-215 Patchmobile portable asphalt patching unit on two pneumatic tires, complete with rotary dryer.

1—Ruhr M 1½-cu. yd. heavy duty grapple. New—excellent buy.

1—Wayne 36-in. rider industrial vacuum pick-up power sweeper.

1—LeRoi 315 air compressor on four pneumatic tires.

1—Bucyrus-Erie 22-B dragshovel Buda gas engine, 26-in. wide pads, ¾-yd. drag bucket. Good condition.

1—H-3 Bucyrus-Erie Hydrocrane on Ford F-6 truck complete with jib and hydraulic bucket. Good condition.

2—CMC Jetcretes with all accessories. Excellent condition.

S. M. CHRISTHILF & SON, INC.
Timonium Road & Harrisburg Expressway
Timonium, Md. **Valley 5-5100**

Model 25 Northwest diesel shovel, long tracks, Murphy engine, 2-speed travel; located near Seattle.

54-B Bucyrus-Erie 2½-cu. yd. shovel with Cummins diesel engine and torque converter, 36-in. wide treads. Serial No. 118053. Machine like new. Used under 900 hours.

38-B Bucyrus-Erie 1½-cu. yd. shovel #83914 with Caterpillar diesel engine, 33-in. wide treads. Located in Seattle.

20-B Bucyrus-Erie shovel with Hercules RXC gas engine, 1940 overhauled. Serial No. 16822.

Model 25 Northwest diesel shovel and multi shovel, GMC diesel engine. Serial #7723. Located in Seattle.

Model 25 Northwest dragshovel with Caterpillar D318 diesel engine. New tracks. In excellent condition. Serial #11986. Located in Seattle.

Model L-41 Lorain hoe with Waukesha gas engine. Serial No. 17832.

CLYDE EQUIPMENT CO.
3110 First Ave. So. **Seattle 4, Wash.**

SMALL SHOVELS, CRANES, DRAGLINES — UP to 2½ YDS.

H-3 Hydrocrane serial No. 81139 mounted on 1950 Chevrolet truck, model 6103. Includes 12' boom insert and 10' jib. Price $4,000. f.o.b. St. Louis, Mo. Write: Euclid Sales & Service, Inc., 5231 Manchester Ave., St. Louis, Mo. Attention: Mr. F. M. Shelden.

1—51-B Bucyrus-Erie heavy duty dragline 80-ft. boom, Cat diesel D337F with torque converter, long and wide tracks and maximum counterweight. Serial No. 117039. First put to work 1957. Has worked a total of nine months. Like new. Located central Missouri.

1—Northwest model 25 crane with 45-ft. boom.

1—Lorain ½-yd. backhoe.

1—D4 Cat with Trackson hydraulic loader, 1-yd. 1950 model.

1—Model H Scoopmobile, hydraulic loader, ¾-yd. 1955 model, excellent condition.

1—12-ton single axle trailer (7:50x20 tires new) air brakes new.

1—Model C Scoopmobile 22-ft. tower, pallet fork or bucket, excellent condition.

1—Model BB120 Wooldridge scraper, 14 to 18-yd., good.

1—Model 41 Lorain ¾-yd. shovel with Cat D4600 engine, 1945 model. Needs some repair.

8—105-cu. ft. air compressors, Jaeger, Ingersoll-Rand, Davey, Worthington, Sullivan, Chicago-Pneumatic.

2—365 Gardner-Denver compressors—good.

1—Model 10-20 Unit backhoe mounted on Dart truck, excellent.

1—1½-yd. Kiesler clamshell-rehandling.

1—¾-yd. Esco orange peel bucket.

CONTRACTORS SUPPLY
620 E. 18th St. **Kansas City, Mo.**

Marion, model 362, with 2-yd. shovel front, 671 GM with Allison torque converter, 22-ft. boom, 18-ft. stick, 14-ft. 8-in. crawler, 33-in. shoes. Contact: Wolverine Tractor & Equipment Co., 25900 W. 8 Mile Road, Detroit 19, Mich. Phone: KEnwood 4-8400.

1—Model H-3 Hydrocrane Serial #112568 (capacity 4 tons at 10-ft. radius) with 18-26 ft. telescopic crane boom and outriggers. All hydraulically operated. Mounted on 6 x 6 GMC Army truck. (This machine was delivered new in May, 1955, and has been used very intermittently, good condition.)
F.O.B. Chattanooga $7,000

1—Model H-3 Hydrocrane Serial #111123 (capacity 4 tons at 10-ft. radius) with 26-38-ft. telescopic crane boom and outriggers . . . all hydraulically operated. Mounted on Model F-600 Ford truck. (This machine was delivered new in June, 1954), good operating condition.
F.O.B. Knoxville $8,000

1—Pulpwood Grapple for use with either of above Hydrocranes . . . hydraulically operated.
F.O.B. Knoxville $700

1—Hydraulically operated backhoe attachment, 18-in. bucket, for use with either of above Hydrocranes.
F.O.B. Chattanooga $1,200

POWER EQUIPMENT CO.
1430 Island Home Ave. **Knoxville 15, Tenn.**

For Sale—Used Bucyrus-Erie 37-B shovel-dragline combination. Serial No. 12225 with light plant, Caterpillar engine. Includes shovel front end with 1½-cu. yd. dipper. Includes extra Cat D13000 engine with clutch and pulley, which is in good condition. Can be used as spare for 37-B. Price $6,500. F.O.B. Ironton, Minn.

Contact N. E. Hill
Pittsburgh Pacific Co. **Ironton, Minn.**

HYDROCRANE

Used H-3 Bucyrus-Erie, mounted on model L-160 IHC truck chassis with individual truck cab. Crane complete with hydraulic clamshell and tagline. Also, 29-in. magnet with Onan 5,000-watt, 220-volt, 21.8-amp. motor generator, including retriever reels, tagline, etc. Truck chassis has 2,200 miles. Tire size 8¼x20 ten-ply with hydraulically operated outriggers. Hydrocrane includes telescoping boom with totally enclosed crane cab. All in excellent condition and available for inspection.

WELLS MANUFACTURING CO.
J. T. Moore **Skokie, Ill.**

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Lorain Model L50, 1-cu. yd. capacity, 70-ft. boom, pendant suspension, fairleads, tagline, long and wide tracks. $14,000

Schield Bantam Model M49 backhoe and crane with 35-ft. boom, mounted on White half-track. Price $5,500

Link-Belt model LS50, ½-yd. capacity, shovel and backhoe crawler mounted, Buda gasoline engine. $6,000

"Quick-Way" model L, ½-yd. capacity, 40-ft. boom, mounted on White halftrack. $5,500

Unit ½-yd. shovel, crawler mounted. Powered by Chrysler gasoline engine. $3,500

Koehring model 304, ¾-yd. backhoe, crawler mounted, with IHC model UD 14 diesel engine. Price $10,500

"Quick-Way" model S, ½-cu. yd. backhoe, mounted on White halftrack. $3,000

The above prices F.O.B. Elizabethtown, Ky.

Lorain model 820, 2-yd. shovel, Serial No. 15552, Caterpillar D13000 engine. Good operating condition. Equipped with drum for dragline operation, $25,000. F.O.B. Louisville, Ky.

Lorain Model 41, ¾-yd. crane, dragline, clamshell Cat D318 engine. Price $8,900. F.O.B. Elizabethtown, Ky.

BRANDEIS MACHINERY & SUPPLY CO.
Brook & Warnock Sts. **P.O. Box 1705**
MElrose 7-4741 **Louisville 1, Ky.**

Lima Model 1201, Serial Number 3339-10, 3½-yd. dipper, Cummins engine. Purchased April, 1957. Available January 1, 1959. Sale Price: $80,000 F.O.B. cars Ely, Nev. For additional information, refer Lang Construction Equipment Co., P. O. Box 1646, Salt Lake City, Utah. Phone: Davis 2-1241.

MISCELLANEOUS EQUIPMENT

3—New, unused, 3 cu. yd. type "BU", Bucyrus-Erie lightweight dragline buckets with all fittings. Weight—5150 pounds each. Special reduced price—$2000 each. F.O.B. Evansville, Ind.

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

FOR SALE

Cat Model 315 diesel engine, Series G—"X" arrangement. Serial No. 48B214. Direct electric starting. Has been used 600 hours. $2,850 F.O.B. Chillicothe, Mo.

Simplicity Simpli-Flow (2) bearing screen, (3) deck 5-ft. by 12-ft. with frame for bin mounting and (15) pieces of extra screen cloth. $2,750 F.O.B. Chillicothe, Mo.

MIDLAND MACHINERY CO.
Phone 280 **Chillicothe, Mo.**

Model 27-T blast hole drill, serial No. 18269, Waukesha gasoline power, crawler-mounted, 33' one-piece all-steel derrick complete with tools in good working order. Located in Missouri. Priced to sell. **Box 3718**

PRICED TO SELL

1—Late Model Self-Propelled GRADALL (one man operated).

1—1956 Le Tourneau-Westinghouse C. Tourna-tractor with Cab and cable bulldozer.

ARNOLT
P.O. Box 489, Metuchen, N. J.
Phone: Liberty 8-6400

ONE—2¼-YD. COAL LOADING DIPPER, NEW FOR 38-B. LOCATED NEAR PITTSBURGH. $2500.
BOX 3720

MISCELLANEOUS EQUIPMENT

Two Joy crawler drills.
These two drills are in good condition. There are also some various lengths of steel and one lot of shanks that go with these drills. Located at Denver.
Littleford Distributor.
Distributor is mounted on 1953 International truck. Truck and distributor both have had good care. Located at Casper Branch.
Allis-Chalmers HD-11G.
Tracto shovel front end loader 2¼ yd. capacity. Model 9800 Ripper. This machine carries a near new classification. Located at Casper Branch.
Bucyrus-Erie 22-B.
This excavator is equipped as a standard dragline powered by Cat Engine. Machine has been reconditioned in our shops. Located at Denver.
320 Cleveland Ditcher.
This machine is two years old and has only 425 hours on it. Powered by a 339 Cat diesel engine, cab and 34-in. buckets. Call Bob Travis at Casper.

THE COLORADO BUILDERS' SUPPLY CO.
1534 Blake St. Denver 2, Colo.

1—New, unused, 20-cu. yd. type "BM" medium duty bare dragline bucket body with teeth. Weight 22,300 pounds. Special reduced price $11,000 F.O.B. South Milwaukee, Wis. John T. Aspel, Bucyrus-Erie Co., South Milwaukee, Wis.

Barber-Greene model 840-B asphalt plant. Includes mixer, hot elevator, dryer, dust collector, tank car heater, feeders, towing trailers, tanks, piping, and 879-A finisher. Excellent condition. Only 2 years old. Immediately available. Attractive price.
Adnun blacktop paver. S/N 1462. Good operating condition. Low price.
LeTourneau C electric Tournapull powered with GMC 6-71 diesel engine. Has 15-yd. capacity. Tires are like new. Good condition. Warranty. Price $18,500
Cedarapids crusher, 12x16. Has Case gasoline engine and mounted on 4 new tires. Has truck height loading conveyor. Good condition. $5,500.

Call—Wire—Write

LANG CONSTRUCTION EQUIPMENT CO.
P.O. Box 1646 Salt Lake City, Utah
DAvis 2-1241

PRICED TO SELL

5—Late Model Le Tourneau-Westinghouse C Tournamatic Motor Scrapers in excellent condition.

MAKE OFFER

ARNOLT
P.O. Box 489, Metuchen, N. J.
Phone: LIberty 8-6400

Onan model PE966 electric set, serial No. 1551, skid mounted, powered by Willys-Jeep, 4-cyl. water cooled gasoline engine, 10-KW generator, 1-phase, 60-cycle alternating current, complete with switch panel $500
International model TD14 diesel tractor, serial No. TDF20852T2, equipped with Cardwell model PBI pipelayer, less boom. This machine has counterweights, crankcase guard, 20-in. grouser tracks. $3,700
LeTourneau model "M" scraper, serial No. S-18359JR6, 6 to 8-cu. yd., equipped with 10:00 x24 tires front and dual rear. $2,250
Two Caterpillar model D8 diesel tractors, 1H series, equipped with LeTourneau model R-8 double drum cable control units. $2,500 and $3,000.
Cleaver-Brooks model PSM125, portable steam boiler, serial No. O-18558, 4,300 lbs. of steam per hour, 125 B.H.P., with light oil burning equipment, including insulation and lagging, turbine type water pump driven by gasoline engine, storage tanks and removable canopy, all mounted on pneumatic tired trailer. Excellent condition. Price on application.

R. L. HARRISON CO., INC.
P.O. Box 1329 Albuquerque, N. M.

Bargain: 30-ton Browning 8-wheel diesel locomotive crane, good condition. $12,000 f.o.b. Detroit.

THE ACME EQUIPMENT CO.
14057 Schaefer Detroit, Mich.
VErmont 7-0366

MISCELLANEOUS EQUIPMENT

4—13-yd. Euclids @ $7,500 each.
Engines: 165 Cummins diesel.
Serial Nos. 4781, 4782, 4783 & 5047.
1—13-yd. Euclid @ $8,500.
Engine: 200 Cummins diesel.
Serial No. 3329.
Model No. of all four tractors, 25FDT.
Model No. of all wagons 58W.
All of this equipment in excellent operating condition and can be seen at 718 Murfreesboro Road, Nashville, Tenn.

McDOWELL & McDOWELL CONTRACTORS
P.O. Box 1141 Nashville, Tenn.
Phone: AL 5-0304

HELP WANTED

Experienced driller, bilingual Spanish/English, willing to travel extensively in Mexico, Central and South America working as serviceman, instructor and demonstrator on water well, shallow oil well and blast hole drilling equipment, both cable tool and rotary. Reply giving resume of education, experience, age, marital status, salary expected, etc., to Box 3738.

Notes from the Manufacturers

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has completed csonstruction of new engineering, development and research facilities in Greendale, Wis., a Milwaukee suburb, about two miles south of the company's West Allis Works. An initial group of approximately 100 scientists, engineers, draftsmen, technicians and administrative personnel moved into the new laboratories in September. When in full operation, the Greendale laboratories will employ about 200 persons.

Bucyrus-Erie Co., South Milwaukee, Wis., has added two distributors. Houghton-Arnold Machinery Co., Portland and Bangor, Me., is new excavator distributor in Maine. Houghton-Arnold offers sales and service on Bucyrus-Erie's full line of ⅜ to 4-yd. convertible excavators and cranes; 10, 15, 25 and 35-ton capacity Transit Cranes; 5 and 12-ton capacity truck-mounted, all-hydraulic Hydrocranes; ⅜ and ½-yd. Hydrohoes and Hydroshovels; and dragline buckets. Complete equipment parts and servicing facilities are maintained at the distributor's plants, 59 Presumpscot St., Portland, and 1070 Hammond St., Bangor. Depco Detroit Corp., Detroit, Mich., has been appointed a Hydrocrane distributor. Depco Detroit will offer sales and service on the complete Hydrocrane and Hydrohoe line only. Depco Detroit's territory includes the portion of Michigan east of and including the following counties: Hillsdale, Jackson, Eaton, Clinton, Gratiot, Isabella, Clare, Roscommon, Crawford, Otsego and Cheboygan. Complete equipment parts and servicing facilities are maintained at 15721 Telegraph Rd., Detroit.

Cummins Engine Co., Inc., Columbus, Ind., will build a major addition to its manufacturing plant with construction to start late in 1958. The new facilities, to cost in excess of $6 million including equipment, will provide about 300,000 square feet of additional floor space, an increase of 38% for the firm. It will include new engine test cells and additional space for the assembly of marine engines, diesel-electric generating sets and power units. The expansion, in addition to expenditures for other new machinery and facilities, will bring total capital expenditures for the year 1958 to more than $12 million.

Electric Steel Foundry Co., Portland, Ore., has named Myron (Mike) F. Pipes sales representative in its central states sales district. Pipes is primarily responsible for representing ESCO's construction equipment to manufacturers of original equipment.

Euclid Div., General Motors Corp., Cleveland, Ohio, has appointed Northern California Euclid, Inc. as an authorized dealer. The territory of the distributor includes the counties north of and including Monterey, Kings, Tulare and Inyo, except Plumas, Sierra, Nevada, Placer and El Dorado. Headquarters are located at Clay and Soule streets in Sacramento. S. T. Collins is general manager and P. W. Hayden is sales manager. A branch sales office is located at 717 Market St., San Francisco. Euclid has also announced appointment of John Sharda as a district sales representative. His territory comprises the states of Illinois, central and southern Wisconsin, eastern Missouri, central and eastern Iowa and Indiana's Lake County.

Mack Model LVX—22½-ton payload rear dumper.

Mack Model LRX—15-ton payload rear dumper.

Send a man instead of a boy!

Big yardages—smashing impacts—heavy hauls. That's when you need a truck with the guts and go of these famous super-capacity Mack off-highway dumpers. No doubt about it, the man-sized jobs are the Mack-sized jobs.

Check the specs with your Mack representative—but remember, Mack quality begins where specifications leave off. And be sure to ask him about Mack users—names, facts and figures—who are handling their big jobs with these profit-earning big Macks.

Mack Trucks, Inc., Plainfield, New Jersey.
In Canada: Mack Trucks of Canada, Ltd.

For capacities of 30 tons or more where maximum flotation and traction are required, a full line of tandem rear axle Macks is available.

MACK
first name for
TRUCKS

These engine users save money with Allis-Chalmers low maintenance...

24 engines average over 5,000 hours before overhaul

Allis-Chalmers engines in 24 trucks hauling ore at a large western copper mine average over 5,000 hours of operation before overhaul. Many have given more than 20,000 hours of service and are still "going strong."

BC-20

Has gone 7,000 to 8,000 hours since overhaul

The Allis-Chalmers 6DC1879 in this Bucyrus-Erie dragline at an eastern plant has had but one overhaul since it was new in 1949, and has gone another 7,000 to 8,000 hours since then. It keeps a fleet of about 40 trucks moving at about 10-minute intervals.

No repairs in 6,000 hours

This Koehring dragline works 10 to 24 hours a day for its Louisiana owner. It is powered by an Allis-Chalmers 1879 that has had no repairing since it was new, over 6,000 hours. The operator reports, "I haven't had a minute of downtime."

...you can, too!

One reason Allis-Chalmers engines *earn* more, *save* more is because they are on the job *working* more of the time.

Their rugged, simple construction results in a minimum of maintenance. Parts are fewer and stronger — that means less wear, less that can go wrong.

"Clean," simple design naturally means easier servicing, too. And you are always close to fast parts and service, wherever you are. Result: Allis-Chalmers engines are back to work quickly. See your dealer for the full story of Allis-Chalmers' dependability and economy. Allis-Chalmers, Milwaukee 1, Wis.

ALLIS-CHALMERS

***POWER* FOR A GROWING WORLD**